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ABSTRACT

This publication is a collection of six essays on the goals and objectives of the introductory college-level economics course written by economic professors from all parts of the country. The purpose is to examine the introductory course in light of the need for clearly defined educational goals which will provide systematic guidelines for the selection of appropriate content, methods, and resource aids for teaching. The first paper comments on reasons for the growing dissatisfaction with the introductory course and discusses ways in which the "eclectic" approach to teaching may improve economics teaching. In the second paper, six different philosophies of economic education are described. The third paper describes the objectives and goals of a course which has as its primary goal the development of students' abilities to think critically about economic objectives. A student-centered, real problem-solving approach in economics teaching is presented in the fourth paper. The fifth essay reinforces the importance of having a philosophy and a set of goals for teaching economics. In the last essay, the authors identify the basic core of concepts and relationships that form the structure of economics. (RM)

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Goals and Objectives of the Introductory College-level Course in Economics

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Publisher's Note

The Federal Reserve Bank of Minneapolis is pleased to publish these thoughtful reflections on the goals and objectives of the introductory college-level economics course.

Editors Nappi and Larsen deserve congratulations for assembling an impressive collection of essays by respected teachers of economics from throughout the country. Dr. Nappi is Professor of Economics and Director of the Center for Economic Education, St. Cloud State University; Dr. Larsen is Professor of Economics and Department Chairman, St. Cloud State University, St. Cloud, Minnesota.

We are confident these essays will have continuing value for economics instructors at the college and secondary levels and are proud to join Professors Nappi and Larsen and the St. Cloud Center for Economic Education in adding this monograph to the important stock of economic education resources.

Bruce K. MacLaury
President

Introduction

Introductory college courses in economics have long been the subject of serious discussion, debate, and research among economic educators. Yet, that discussion, debate, and research has failed to generate an effective response to criticisms of the economic curriculum. Economic illiteracy among students continues, with many students complaining that content is abstract, irrelevant, and unresponsive to their needs and interests.

Our purpose here is to examine the introductory course in light of the need for clearly defined educational goals. Educational goals provide systematic guidelines for the selection of appropriate content, methods and resource aids for teaching. Only when the philosophy and goals of the introductory course are precisely stated, can meaningful questions related to content and methods be answered. Decisions about what to teach and how to teach cannot be successfully determined until the goals of the course are made explicit and are related to expected learning outcomes.

Much of past and current research on the principles course has been directed primarily to an assessment of alternative approaches to teaching in the two- and four-year colleges. The literature abounds with discussions and commentary, focusing attention on the variety of methods being utilized: case study, programming, gaming-simulation, inquiry, television, and computer-assisted instruction. Few serious research efforts, however, have been devoted to a systematic review of the goals and objectives of the introductory course.

Goals and Objectives is organized around six separate-but-interrelated papers dealing with the philosophy and goals of the principles course. The articles were written by distinguished economists and economic educators who have had extensive teaching and research experience with principles courses in their respective institutions. The views expressed by the authors vary from individual to individual and reflect their differing personal interests. There is, however, obvious overlapping in the papers with respect to some of the major goals and content areas recommended for the course. Points of agreement and consensus are also found among the authors' views concerning the shortcomings of the course.

The papers do not attempt to represent all aspects of the problem. They were selected because the authors are working with the problem and have something worthwhile to offer the profession in its attempts to create a more successful beginning course in economics. We are grateful that these individuals are willing to share their thoughts with us.

The papers vary in their perspectives: from a hard look at some of the factors which may account for the failure of current courses to attempts at defining course goals and objectives.

The papers also define and examine some of the alternative approaches that have been and may be used in the beginning courses. Each of the papers, in one manner or another, points out the interrelatedness of the goals, content and techniques of the educational process that must be considered if we hope to promote a successful change in educational outcomes of the introductory course.

The first paper in this volume comments on the apparent shortcomings of the principles course and examines the relationships between goals, content and techniques. Campbell R. McConnell's "Some Reflections on the Principles Course," analyzes the main reasons for the growing dissatisfaction with the introductory course. Professor McConnell also reviews recent developments in the field which suggest potential improvement in the course and describes how the "eclectic" approach to teaching may help create and sustain interest in the discipline.

In "Building a Philosophy of Economic Education," Professor Laurence Leamer describes six different philosophies of economic education. Each philosophy or approach to teaching establishes evaluative criteria for the selection of the "central organizing concepts" and principles to be taught in the course.

G. L. Bach's paper, "What Should a Principles Course in Economics Be?" calls for a course which has a primary goal of developing an-

dents' abilities to think critically about economic problems. He presents four objectives for the course which focus specifically on student behavior and which are based on psychological propositions from learning theory. Bach also presents 20 fundamental ideas that students are expected to understand upon completion of the course.

In their essay, "A Student-Oriented, Real Problem Solving Approach in Economics," William Becker and Craig Swan suggest that the major goal of economics instruction is to acquaint students with a limited number of concepts and skills that can be applied to personal and social problems of interest to them. The authors explore this objective in terms of its multifaceted emphasis on the student's ability, the use of economic analysis and "real problem" solving applications of economic knowledge. The concluding section of their paper describes the student-instructor relationships that characterize the "real problem" approach to teaching economics.

The importance of a philosophy and a set of goals for teaching economics is reinforced by Richard Leftwich in his essay, "Objectives of the College-level Principles of Economics Course." In his discussion, Leftwich calls for reorganization of the course based on student objectives which emphasize concrete and useful economic principles. He also recommends three objectives for the course and identifies 17 key concepts and generalizations necessary for basic economic literacy.

Darrell R. Lewis and D. Bruce Johnstone present their views in "Curriculum, Welfare, and the Introductory Collegiate Course in Economics." The authors illustrate the potential for the use of an "economic perspective" as the overriding goal of the course and attempt to identity the basic core of concepts and relationships that form the structure of economics. They make a very important point in noting that offering and teaching the introductory courses implies a set of objectives on the part of the department and the instructors. It should be quite obvious that desired ends can only be attained when the objectives of these efforts are made explicit beforehand.

The essays presented in this publication are the result of the Minneapolis Federal Reserve Bank's special interest in considering factors that impact on, and the problems associated with, the philosophy and goals of the principles course. The task was to present the impressions of noted scholars who have seriously questioned the effectiveness of the principles course and who have devoted their professional skills to developing reasonable approaches based on their personal philosophies and goals of economic learning.

We hope that readers will be encouraged to examine their introductory courses and be spurred to conduct systematic reviews of goals and objectives. It is also hoped that these papers will stimulate discussion in the profession and promote the exchange of ideas, thoughts, and results with the authors.

Sincere appreciation is extended to the Minneapolis Federal Reserve Bank for publishing this work. The editors are especially indebted to the authors who contributed these provocative papers.

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Some Reflections on the Principles Course

Campbell R. McConnell*

The following essay is the result of a gracious invitation to reflect upon the character of, and the problems associated with, the principles of economics course. For one who has been associated with this course for almost a quarter century, such an invitation is not merely welcome, it is irresistible!

Two caveats are in order. First, my perspective is based on a lengthy association with a large state university which has a tradition of relatively open admissions. It is reasonable to expect that whatever validity or relevance my impressions may have will diminish as one relates them to America's handful of prestigious institutions or to small liberal arts colleges. Second, I intend to exploit fully the opportunity before me. After all, given my assignment, there is no need to worry about such matters as misspecified variables, low coeffecients of determination, independent variables with the wrong sign, or unwarranted inferences. My task, relatively unfettered by statistical paraphernalia, the canons of logic, and other such scientific entrapments, is simply to present my impressions of the introductory course.

My comments fall generally into three categories. First, there is an attempt to account for the "bad press" with which the principles course has long been burdened. Second, the consequent gloom is dispelled (somewhat) by a survey of some more-or-less recent developments which can lead to the improvement, not to say renaissance, in the effectiveness and palatability of the course. Finally, a modest defense of the much-maligned eclectic approach will be offered.

A BAD PRESS

If economists agree on one thing, it is that the introductory course is a source of serious and prolonged dissatisfaction. Evidence of the bad press accorded the principles course is abundant. Professional meetings periodically devote sessions to the problems associated with the content and teaching of the principles course. Noted scholars have questioned the effectiveness of the course. So sayeth Professor George Stigler (1962, p. 657):

> The watered-down encyclopedia which constitutes the present course in beginning college economics does not teach the student how to think on economic questions. The brief exposure to each of a vast array of techniques and problems leaves with the student no basic economic logic with which to analyze the economic questions he will face as a citizen. The student will memorize a few facts, diagrams, and policy recommendations, and ten years later will be as untutored in economics as the day he entered the class.

And it must be admitted that, when practitioners congregate, the conversation frequently degenerates into a masochistic lament over the shortcomings—real and imagined—of the introductory course. Dissatisfaction with the course is shared by students. They frequently regard it as uninspiring, irrelevent, and sorely at odds with their expectations. On the other hand, for most economics departments the principles course is *the* major pedagogical undertaking. It is the department's one and only contact with most students and, hence, its primary means of "recruiting" majors. For most departments, the staffing of the principles course represents its most resource-absorbing endeavor.

Why, then, given the primacy of the principles course, haven't the payoffs from the course been more acceptable? Let me speculate with respect to a number of possible factors, admittedly interrelated and overlapping, which may contribute to the allegedly dismal record of the principles course.

Student Aspirations

In discussing the less-developed countries in the principles course, instructors often tell their students that the differential between Aspirations and Accomplishments is equal to Social Unrest. It obviously follows that, if a population's Aspirations are unrealistically high, Social Unrest may be substantial even in the

* Carl Adolph Happold Professor of Economics, University of Nebraska-Lincoln

presence of significant economic accomplishments. Perhaps the same kind of rationale applies to the principles course. Many students undoubtedly come into the course with the anticipation that it will provide them with clear-cut and definitive answers to the pressing socioeconomic problems of the day. Given the inherent nature of the course—it is merely an introduction, after all—these aspirations are rarely fulfilled. Students emerge from the course with a sense of disappointment, although in fact the course may have accomplished a great deal.

Why can't we do a better job of providing students with answers to the current problems at the forefront of their thinking? In the first place, we must admit that in many cases we simply do not have the answers—at least good, generally accepted answers. At the present time, for example, economists do not have a convincing explanation of the current economic environment of simultaneous inflation and unemployment. Secondly, there is the hard fact that current problems are highly complex. Good, relevant answers require more understanding of economic analysis than can be reasonably absorbed in a first course. A *good* explanation of the economic impact of a dollar devaluation, for example, calls for the student to have at hand a rather substantial box of analytical tools. Thirdly, in many instances answers to current socioeconomic questions transcend the discipline of economics. Hence, economists *qua* economists cannot reasonably be expected to know all the answers. To illustrate: events of the Watergate era make it abundantly clear that supply and demand may have little to do with the price of milk. And I must confess that radical economists' assertion that orthodox economists are simply asking the wrong questions is very bothersome to me.

The above comments may be naive in that they are based on the assumption that students have a reasonably accurate conception of the *kinds* of questions which are relevant to economics. Student aspirations may be dealt another punishing blow if the student anticipates a functional-vocational course. Some students, despite ample warnings to the contrary, expect a principles course to contribute in some direct and substantial way to one's expertise as a businessperson, executive, or manager of one's own financial resources. Such expectations are doomed to be unfulfilled. As one experienced teacher has summed up the problem: "The student whose conception of economics is a fuzzy mixture of Wall Street and life insurance is simply not with us when we move gracefully from marginal utility to marginal productivity."[1]

The issue of aspirations and student motivation can be carried a step further. Professor W. Lee Hansen (1976) distinguishes between "citizenship economics" (where the concern is with "overall questions of efficiency and equity, stability and growth, and the like") and "personal economics" (where the emphasis is upon personal decision-making as related to career choice, personal budgeting, and so forth). He points out that the citizenship approach, stressed by economics teachers, implies payoffs largely in the form of social benefits. On the other hand, the personal approach, anticipated by students, implies direct private benefits. The problem is that students are not motivated to provide the effort needed to acquire the knowledge contained in the typical citizenship-oriented principles course because they correctly perceive few private benefits. Hence, the efforts of economics departments "to produce economic literacy for effective citizenship are frustrated." Ironically, although students are presumably very receptive to personal economics because of the private benefits it embodies, economics departments are typically uninterested in incorporating this orientation in their introductory course.[2]

Student Diversity

The problems associated with the principles course undoubtedly stem in part from the heterogeneity of its clientele. At most colleges and universities the introductory course is populated by a far-ranging variety of students. At one end of the continuum we find the economics

[1] Jerry L. Petr, 1971, p. 45.

[2] This paragraph draws heavily upon pp. 6-9 of Professor Hansen's paper.

majors or "potential" majors. At the other extreme are the "pragmatists" who are looking for a place to keep warm between their 8:30 and 10:30 classes. Between these extremes are arrayed home economics and journalism majors who are reluctantly fulfilling a requirement, engineers who are present at the insistence of their faculty advisors, and undeclared "shoppers" who have not yet "found themselves" in terms of their academic objectives. As with all introductory courses, the resulting polyglot of interests and expectations is a fertile breeding ground for student disappointment and frustration. How does an instructor respond to a young woman who casually inquires as to how principles of economics will contribute to her major in fashion design?

A "Sophistication-Ability Squeeze?"

The general dissatisfaction with the principles course may also be derived from two other conflicting developments. On the one hand, widely-publicized data suggest that the capabilities of college-bound students seem to be declining. For the past dozen years the results of college entrance examinations suggest that the verbal, writing, and quantative skills of potential college entrants have been falling. Although there has been a great deal of conjecture concerning the causes of these deteriorating test scores, the evidence does seem to suggest on balance that less adequately prepared students are entering academe.[3]

The second development is that in the past 25 years or so the breadth and sophistication of economics have increased dramatically and this has been reflected in the principles course. To illustrate, pre-Samuelson texts were unencumbered by the complexities of macroeconomic analysis and measurement. And it was perhaps only 15 years ago that economic growth penetrated the principles course as a new and intriguing, but difficult, topic. In a quick survey of pre-Samuelson texts one is impressed by the relative paucity of geometric presentation and the virtual absence of quantitive apparatus in general. In short, 25 years ago economic analysis was much narrower in scope and the approach to economics was much more oriented toward historical, descriptive, and institutional materials.

My point is obvious: We are attempting to present an expanded, more sophisticated and increasingly demanding subject matter to students who, on the average, may have a diminished capability for college-level work. Small wonder that the principles course is a source of tension and frustration for both teachers and students.

The Teaching Dimension

To recapitulate: We find in the principles course (1) a student body whose aspirations concerning the course are diverse, unrealistic, and misguided; (2) a very heterogeneous student population of possibly diminishing capabilities; and (3) an expanding and increasingly sophisticated body of subject matter.

How do economics departments react to the obvious pedagogical challenge posed by this unappealing combination of characteristics? Many departments, it must be admitted, respond by assigning their least-experienced teachers to staff the course. The hard fact is that at most large, Ph.D.-granting institutions, the principles course is taught primarily by relatively inexperienced graduate teaching assistants (TAs). It is certainly *not* my intention to demean either the abilities or the dedication of the vast majority of TAs; indeed, my impression is that they are probably brighter and better prepared at the completion of their formal training than were the "old hands" providing that training at a similar point in their careers. My point is that most TAs are going through an apprenticeship period and inexperience means mistakes, an absence of depth of understanding, and a restricted range of knowledge. Furthermore, for most TAs this period of apprenticeship teaching is the most harried, overburdened period of their entire academic lives. In addition, the near-subsistence level of most graduate stipends is hardly conducive to high TA morale and a strongly motivated classroom effort. Indeed, with some justification, TAs feel

3 See, for example, *U.S. News & World Report*, September 15 and November 24, 1975.

they are being financially exploited.[4] Typically, with little or no teaching training or direction, TAs are thrust into a classroom and told to "teach principles." As one might anticipate, the consequences of this "here's the textbook, there's the classroom" method of teacher training are not always salutary.[5] One particularly unfortunate response on the part of TAs is the tendency to transfer the more-or-less esoteric analysis of their advanced courses to the principles course. In this way TAs have the opportunity to enhance their own grasp of the material through teaching and also save the time and effort involved in the preparation of more appropriate materials. One can hardly imagine a more effective way of confounding and frustrating principles students. Finally, the recent relative decline in career opportunities in teaching means that TAs are not likely to be highly motivated to invest great quantities of time in classroom preparation. Given the growing probability that their careers will lie in public or private research rather than in the classroom, the private yield from such an investment may be so minuscule that it is unwarranted.

Generally speaking, the propensity of permanent staff to opt for the principles course is not strong. After all, in this era of specialization the general practitioner is held in relatively low esteem. Carl Kaysen (1974, p. 182) has succinctly described the changing role of teaching in higher education which has occurred in the past three or four decades.

> . . . the academic world has changed from one in which the characteristic activity was the teaching of undergraduates. The representative faculty member was a teacher; he might or might not be a scholar or scientist contributing to the advancement of science and learning as well. If he was, it was in a certain sense incidental to his main activity, and he was almost certain to be on the faculty of one of the dozen or so universities where most of the country's research activity took place. . .
>
> Now the scientist or scholar is the representative faculty member. Research and scholarship and the training of graduate students who will in turn carry on these tasks are his characteristic activities. The number of universities where serious work is done has multiplied at least fivefold . . . Statistically, of course, the picture has changed much less drastically; undergraduate teaching still bulks large in the total activity of the whole professoriate, and the proportion of the group that contributes significantly to the advance of science and scholarship remains small. But in terms of academic values, the change is overwhelming.
>
> The representative professor typically has neither time or inclination to teach those who are not on the way to becoming professionals in his subject, whether as committed graduate students, or undergraduate majors from among whom the graduate students will be recruited . . . The more a man is successful and celebrated as a scholar, the less willing and able is his institution or even his department to press him to teach what he is not inclined to.

Professor Kaysen's comments might be supplemented by noting a number of very pragmatic reasons *not* to teach the principles course. First, there is the matter of rewards. The university reward structure is oriented largely in favor of specialists — Kaysen's *new* representative faculty members — who master a given (narrow) area to the extent that they can contribute to the research and literature in that field. Stated differently, the costs borne by professors who dedicate themselves to the principles course can be great in terms of prestige, academic advancement, and financial

4 In this era of financial retrenchment in higher education legislators frequently lament the apparent high cost of graduate education and single it out as a top-priority item for curtailment or elimination. But legislators would be well-advised to include in their cost calculations some estimate of the increase in departmental wage bills associated with the replacement of low-wage TAs by relatively high-wage professorial staff.

5 It is recognized that the results of empirical studies on the effectiveness of TAs vis-a-vis professorial staff are mixed. See Charles Lamphear and Campbell McConnell (1970, pp. 139-142); Wallace E. Oates and Richard E. Quandt (1970, pp. 131-138); Phillip Saunders (1971, pp. 36-40); and Howard P. Tuckman (1975, 34-49).

reward.[6] Forthrightly stated, many of the problems now associated with the principles course might diminish or disappear, *if* the incentive system was revised to reward those teaching introductory courses at levels comparable to those who engage in other facets of academic life. The profession has shown no strong propensity to engage in such a restructuring of the incentive system and it is not unreasonable to infer from this inaction that the profession *as a whole* simply does not regard the teaching of principles as a high-priority endeavor. A second and related point is concerned with the matter of specialization. Although economists are willing to communicate the benefits of specialization with considerable vigor in the classroom, there is a curious reluctance on the part of the typical economics department to apply this notion to its own endeavors. Indeed, most departments of which I have knowledge insist upon evaluating each and every member on the basis of *both* teaching and research. With exceptions, the profession has displayed a pervasive reluctance to allow professors who have demonstrated outstanding competence in teaching to devote all of their efforts to teaching and to be rewarded on the basis of their teaching performance. Similarly for professors with a comparative advantage in research. If the profession was to practice the specialization it preaches, we might find (to no one's surprise) that a given quantity of academic inputs might produce more new knowledge *and* a higher level of economic literacy for students. Thirdly, there is the matter of numbers. Given the nature of the principles course and the pattern of attrition at most institutions, professors who elect to teach principles are opting for larger numbers of students than are their colleagues who teach more advanced courses. Fourth, there frequently exists a tacit understanding that one of the functions of the principles course is to weed out marginal students. It is understandable that many teachers choose, when possible, to avoid this unsavory task. Fifth, intermediate and advanced courses are populated by a far more selective and homogeneous group of students, both in terms of ability and interest, making such courses easier and more pleasant to teach. Finally, there is the matter of student evaluations. There is evidence to suggest that, *ceteris paribus*, student evaluations of teachers improve with course level. That is, a given teacher will tend to receive a higher rating in junior- or senior-level courses than in a freshman or sophomore course. Ironically, this suggests that the widespread acceptance of student evaluation procedures may create some incentives for teachers to retreat from the principles course to intermediate and advanced courses. Given all of these considerations, one should not be surprised to find that professors who teach principles are so engaged not by design or volition, but rather as a means of "filling out their schedules."

RECENT DEVELOPMENTS: CAUSE FOR OPTIMISM?

This portrayal of the problems associated with the principles course is admittedly grim. But, fortunately, there are some atypical developments afoot which suggest potential improvement in the principles course and, perhaps more importantly, a growing concern for the establishment of a course of quality.

TA Training

It is widely recognized that there has been

> . . . insufficient positive effort by the graduate schools to improve teaching, and even a denial by some members of the graduate faculties that their schools or departments have any responsibility to prepare their incipient Ph.D.s for teaching. Except in a few institutions, the beginning professor emerges from graduate work deficient in almost all the skills of teaching: the formulation of goals, curriculum and course construction, an un-

[6] "One of the major problems of the university is the weakness of its ostensibly primary function—teaching. It is universally admitted that university teaching is pedestrian and ill rewarded. While there may be exceptionally good teachers here and there, on the whole the level of teaching is mediocre to poor, and there seem to be no institutional mechanisms for improving it. In part this is because teaching is so invisible and so hard to appraise. Research and publication have the great advantage of visibility so that, when the question of promotion and salary increases comes up, the faculty member with an impressive record of publications is immediately visible; the faculty member whose main concern is good teaching has his product invisibly distributed over silent students and alumni." See Kenneth E. Boulding (1975, pp. 300-301).

derstanding of student differences, the development of a good lecture, the conduct of lively discussion, the adequate use of teaching aids, the evaluation of students.[7]

The notion that graduate students would somehow become capable teachers by some ill defined process of academic osmosis has enjoyed a remarkable tenure. Fortunately, thanks to the efforts of the American Economic Association (AEA) Committee on Economic Education, the University of Minnesota, and the Joint Council on Economic Education (JCEE), a well-conceived and affordable program of teacher training for TAs now exists. A number of prestigious institutions have adopted this program and the prognosis is for widespread acceptance and salutary direct effects upon the quality of teaching, particularly at the principles level.

The purposes and operational details of the Minnesota JCEE program have been detailed elsewhere (Lewis and Orvis, 1973; Lewis and Becker, 1976). However, two aspects of the program are particularly relevant to this essay. On the one hand, by directing attention specifically to the critical issues of the needs of students *and* the level at which principles should be taught, the program militates against the previously noted tendency of beginning TAs to transfer the content of their advanced courses to the principles level. On the other hand, the Minnesota program impresses me as having a promotional aspect; it promotes interest in, and dedication to, teaching as a professional activity. That is, in the long run the teacher-training program may be instrumental in elevating teaching from the status of an activity which one must perform in exchange for the privilege of doing research at a recognized university, to a professional endeavor which is intrinsically worthwhile in its own right.

Despite the virtues of the new teacher-training program, it would be precipitate for the profession to regard it as a panacea or to take the position that economists have now "done their bit" for the improvement of teaching. We must regard a nine-week seminar to be a "teaching appreciation" course, rather than an endeavor which will produce quality teachers overnight. Indeed, even more ambitious programs of teacher training may fail to produce significantly improved instruction if the reward system remains unaltered and departments fail to sanction greater specialization in teaching.

On the other hand, the academic climate of the 1970s may be changing in such a way that the priority placed upon teaching is at least slightly enhanced. At some schools budget constraints have generated formidable pressures for increased teaching loads at the expense of research efforts, thereby forcing a relative upgrading of teaching and a relative downgrading of research in their priority systems. Similarly, the widespread acceptance of mandatory teacher evaluation programs has provided reasonably "hard" evidence which is highly useful for the rewarding of effective teaching.[8]

Research in Economic Education

Another development which leads one to be optimistic about the quality of college teaching in general, and the improvement of the principles course in particular, is the recent outflow of research in economic education. Much of this interest is attributable to the efforts and activities of the AEA Committee on Economic Education and, in 1969, the creation of *The Journal of Economic Education*.

The existence of the *Journal* is important in several ways. Most obviously, it is a means of communicating research findings on teaching. One is under a professional obligation to keep abreast of salient advances in subject matter, but the obligation has not been present to keep pace with research in economic education. In point of fact, before the existence of the *Journal* there was no ready means of access to such research. Less obviously, by providing an outlet for research in economic education, the *Journal* has undoubtedly been an important stimulus to the undertaking of such research.[9] While there

[7] AEA Committee on Undergraduate Teaching (N.D. pp. 19-20).

[8] The counterforce at work is that, with fewer academic positions available, there is likely to be increased pressures upon young Ph.D.s to do more research.

[9] For earlier reviews of research in economic education see Bernard F. Haley (1966), Keith G. Lumsden (1967 and 1970), and Rendigs Fels (1969).

is no conclusive evidence as to whether subject matter research *in general* and teaching are complementary or competitive (my hunch is that the latter is true), one can reasonably presume that research *in economic education*, on the one hand, and effective teaching, on the other, are highly complementary endeavors. In other words, the existence of the *Journal* may encourage research in that area wherein the trade-offs between teaching and research are most acceptable or, alternatively, where the complementarity is strongest. Finally, it may be worth noting that respectable research on the effectiveness and efficiency of alternative instructional methods may be a critical determinant of the quantity and quality of economic research in general. As our stock of knowledge expands, it becomes an increasingly resource-absorbing task to transmit or communicate this knowledge. Unless there is improved efficiency — rising productivity — in the teaching or knowledge-communicating segment of our industry, it may become increasingly difficult to free resources for the discovery of new knowledge.[10] Many, if not most, studies appearing in the *Journal* have relevance for the task of increasing the productivity of economists as teachers.

Differentiating the Product

One cannot help wondering if many of the problems associated with the principles course stem from its traditional rigidities. For example, the lecture has traditionally been the cornerstone of pedagogy in higher education. The past ten or fifteen years, however, have been characterized by a wide variety of experiments with new approaches to, and techniques of, teaching. These include television instruction, case methods, programmed learning, gaming and simulation, computer-assisted instruction, personalized self-paced instruction (the Keller Plan), videotaped dialogues, and so forth. In brief, there has been a healthy interest in "product differentiation," a propensity to supply students with a greater menu of pedagogical choices.

The theory of consumer behavior implies that, within limits, greater product differentiation enhances consumer satisfaction. A simple, and hopefully not naive, analogy suggests that the tendency of colleges and universities to make available several pedagogical options to students may tend to ameliorate some of the problems and frustrations now associated with the principles course. To carry the analogy a step further, rational consumer choice presumes perfect knowledge; the buyers must be aware *ex ante* of the satisfaction which they will derive from additional units of a product. Similarly, the students confronted with several pedagogical options need information concerning their learning capacities under various instructional arrangements. Indeed, an important future area of research in economic education may involve the effort to identify which students will learn more effectively and efficiently with a given pedagogical alternative. Which students learn best by more-or-less passively listening to a traditional lecture? By working through programmed materials? By actively participating in case-problem discussions? By working independently at their own pace? Not only should student-customers be offered a variety of instructional options, but they should also be provided with useful information with respect to which option might be most relevant for them.

To summarize: (1) the existence of a formal program of teacher training for the graduate schools; (2) the flourishing of research in economic education; and (3) innovations which provide a potentially wider range of pedagogical choices for the student as consumer, are all forces which *may* tend to ameliorate the problems and frustrations associated with the principles course.

ECLECTICISM: A MODEST DEFENSE

Professor Stigler's quotation at the outset of this paper bemoans the encyclopedic character of the principles course and suggests that the problems envisioned in the course arise in good measure from that characteristic. This is neither a unique nor recent criticism. In 1950 the AEA Committee on the Undergraduate Teaching of Economics concluded that ". . . the content of the elementary course has expanded

[10] Boulding (1969, p. 10).

beyond all possibility of adequate comprehension and assimilation by a student in one year of three class-hours a week." Similarly, in the view of Lewis E. Wagner (1962, pp. 4-5):

> . . . we aspire to teach students facts, institutions, tools of analysis, methodology, theory, problem-solving, critical and objective thinking, an economic way of thinking, an understanding of social policy, in addition to preparing them for advanced courses and contributing more fully to their liberal education — all in six semester hours.

The alleged consequence is frustration on the part of both teacher and students *and* an ineffectual course. Paraphrasing Winston Churchill, Wagner argues that the inevitable outcome of the encyclopedic approach is that "Never have so many learned so little about so much."

The solution is as obvious as the perceived problem: the principles course needs drastic pruning. The options are many. At one end of the spectrum the proposed line of redress is to curtail drastically the use of the technical-analytical apparatus — to eliminate all or much of the technical jargon and geometric presentation now characteristic of the course. At the other extreme it is suggested that the course should be purged of virtually all descriptive, institutional, and problem-policy materials to release time for a rigorous and highly integrated course in analytical economics. The various other approaches to the course which are so admirably described by Dr. Laurence Learner elsewhere in this volume present additional options.*

In one important respect my own views are very much in accord with the "encyclopedic protest." To be blunt, I am alarmed at the *level* of analytical sophistication upon which some instructors and departments insist. A dedicated teacher has pinpointed this problem and its implications as follows:

> Most of us are simply giving the students too many 'principles.' Every year, it seems, more and more concepts, which previously had been reserved for the intermediate theory or even the advanced theory sequences, are being taught in principles courses. In fact, I have an uneasy feeling that there is enough in several of today's principles texts to warrant their use in certain graduate courses. For example, indifference curves and isoquants, with all their ramifications, are frequently taught as part of elementary economics. We find ourselves enmeshed by envelope curves and saddle points. We are caught up by accelerators and even LaGrange multipliers and set theory. Then we spend the rest of the undergraduate program, and a good deal of the graduate program, repeating the same material. The results are predictable. The poor students are hopelessly swamped in the principles course, and the best students are turned off in later courses, when they find that they are getting very little new material.[11]

To all of this I say, "Amen!"

But, aside from this dimension, I wonder whether the widely held assertion that the problems associated with the principles course arise from its alleged encyclopedic character is not overdrawn. Certainly the "costs" implicit in the proposed options must be isolated and considered. To opt for the nonanalytical approach, for example, is to give students a grossly distorted view of what economics and its methodology are all about. The analytical approach, on the other hand, is frequently tantamount to a barren exercise in deductive logic. One of the several objectives of the principles course is to create and sustain interest in the discipline; one may question whether an uninterrupted diet of economic theory will foster this goal. More positively, I am not yet prepared to accept the rationale that, if we attempt to do only a few things in the course, we will surely do them well.[12] Nor am I convinced that it is less sound pedagogically to fulfill rather ambitious goals partially than it is to achieve more modest ones completely. In short, I sim-

* See page 12, this volume.

[11] Allan B. Mandelstamm (1971, p. 43).

[12] As Fels (1969, p. 7) has pointed out, the hypothesis that the principles course is "overloaded" has never been substantiated.

ply find myself unable and unwilling to draw hard lines between and to reject completely — or even in large measure — any of the approaches sketched by Dr. Leamer. They all have substantial appeal. Hence, my inclination is to take "some of each" — to attempt a workable synthesis of the salient elements of each — and to offer the resulting product without apology. The problem, I recognize, is to make the resulting smorgasbord as appealing and effective as possible. It is to this end that I hope the developments outlined in the second part of this paper will make important contributions.

Finally, is the principles course — eclectic as it now typically is — really *that* bad? One might reasonably hypothesize that a Ph.D. degree plus ten or 15 years of teaching experience can be conducive to the establishment of unrealistic expectations with respect to student performance. My earlier analogy concerning student aspirations may be relevant in a slightly altered form. The profession may, in fact, be accomplishing a great deal in the principles course as presently conceived, but nevertheless feel a sense of failure because that achievement is far short of our lofty goals.

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Building a Philosophy of Economic Education

Approaches to Economics Teaching — What Should Be Taught and How?

Laurence E. Leamer*

We begin with the most fundamental question of all: What should be taught and how? The answer to this question depends on an individual's philosophy of economic education. Nothing is more important for teachers, or prospective teachers, of economics to think through than their teaching goals and the means of attaining those goals.

Alternative philosophies of economic education are usually called approaches to economics teaching. The purpose of this paper is to briefly define several of these different approaches to teaching economics. Most approaches are quite similar in content; differences are primarily in the emphasis of central organizing principles.

ANALYTICAL OR PRINCIPLES APPROACH

Economic analysis is the very heart of our discipline in the view of most economists. Therefore if the introductory economics student or the undergraduate economics major is really to learn economics, they must above all learn theory, both micro and macro. Whatever else is taught — problems, institutional description, history — it should be used primarily for the purpose of making the teaching of analysis more effective. Certainly, if pressed for time, extraneous subjects should be omitted, passed over lightly, or left to students to learn on their own. Economics is fundamentally a training of the mind, a science of choice. Above all we should teach our students to appreciate economic analysis and use economic principles to reason like economists. In designing courses and in the teaching process, *rigor* should be the primary goal. This we call the analytical or principles approach. To the majority of economists it is probably the only approach.

The title of a course or text employing this approach is likely to read "Principles of Economics," "Economic Analysis" or some variant thereof. The economic topics or units of study emphasized in the course or textual materials usually reveal the analytical focus: macro and micro economics, price, production and distribution theory, national income and output analysis, monetary theory. Problem applications will follow the teaching of relevant theory rather than being used to introduce it. Typically a course or text begins with a section on scope and method and an extended section on important economic terms, such as factors of production, wealth, income, opportunity costs, and other terms needed to understand the analysis to follow.

PROBLEMS APPROACH

A small but growing number of economists feel that the analytical approach misses the very central use of economics: the solution of problems. Analysis should perhaps be central in the education of professional economists but problems should be the central focus of economics for the citizen. It is in the form of problems that economics relates to most of us. Problem economic issues are discussed and debated in the media. We cast votes as expressions of our judgment regarding problems and their proposed solutions.

Therefore, students need to be taught to employ the problems approach in their thinking; in other words, define the problem, identify goals, determine alternative solutions, and choose the best course of action, taking into consideration the probable consequences of each alternative solution.

Thus, stress should be placed on the meaning of such goals as efficiency, stability, growth, development, equity, and such social goals as justice, freedom, and security. Economic analysis, institutional materials, and economic history and economic philosophy should be introduced as they relate to problems. Finally, it is not enough to teach the problems approach once. Rather it should be used and reused by the student in the study of a series of problems. The supreme test of a course is whether students will continue to employ this problems approach to thinking outside the classroom.

An introductory course or text using this approach is likely to be called "Economic Prob-

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lems" or a variant thereof. Similarly, an advanced course would be "Labor Problems."

INSTITUTIONAL OR DESCRIPTIVE APPROACH

Proponents of an institutional or descriptive approach feel that the central goal of economics instruction should be simply to open the student's eyes to the economic world. Analysis (at least for the introductory or undergraduate student) is seldom the tool for understanding the reality to which it applies. It is presumptuous to teach students to "solve" economic problems, as in the problems approach, that even the experts are unable to solve. Why not therefore abandon such goals and focus economics instruction on the institutions which surround us? Analysis and problems materials may then be introduced when and if they will contribute to the student's understanding of the economy and its parts.

There are several variations on this approach. A course may stress the learning of economic concepts, terms, or ideas that students are likely to encounter. This variation has been called the "conceptual approach." Or it may describe economic institutions with which the student has daily contact in person or through the media, including: banks, stock market, employment agencies, supermarket, and credit markets. This has been called the "personal economics approach." A similar variation is the "consumer economics approach" in which materials are organized around the activities of people as consumers and as producers. Thus organizational profiles may vary in the institutional or descriptive approach to teaching economics.

SYSTEMS APPROACH

Proponents of the systems approach believe that the central function of economics teaching should be to enable students to understand the economy as a social organization — for example, as a system for answering the key questions of production: what, how and for whom? The frame of reference for this approach is usually the basic functions that are common to all economies — production, exchange, distribution, and consumption. Analysis, institutional materials, history, and problems are introduced where appropriate. But the overall goal is to open students' eyes to what they have been a part of without really seeing: their economy as a system of coordination. Usually by comparing the American economic system with other systems, a clearer understanding of our system is gained.

Courses and texts following this approach are often called "The Economic System," "The American Economy," or "Comparative Economic Systems."

HISTORICAL APPROACH

All of the foregoing approaches tend to portray economics as a static science or as a collection of *final* truths and constructs to be mastered. Unless students are prepared to expect changes in economic ideas and institutions, they are likely (if they are among the few who remember what they were taught) to be guided in the future by some disproved theorist of the past.

Students must understand the past in order to avoid rediscovering established wisdom. Unless students learn that current institutions and analysis are merely the latest phase of an evolving body of knowledge, they will be ill-prepared for their changing future.

Thus advocates of an historical approach would teach economic concepts, institutions, problems, theory, and organization by means of historical change. Our present economy, seen in historical perspective, becomes an evolving one. Economic theory taught within the context of the history of economic thought becomes a changing and cumulative effort of great minds to understand the economy and to develop ways of coping with persistent and emerging problems. The history of economic problems becomes a dynamic picture of changing values or goals and of changing institutions, leading to new problems and our first consciousness of new efforts to solve old problems.

Thus the historical approach alone prepares students to be part of a world of change. These students are much less likely to be struck with "future shock" than are those who have been taught by other approaches. They are also more likely to want to use their talents for shaping a better future.

The usual profile for courses or texts using an historical approach is simply through a chronological history. But this approach may be combined with other approaches by presenting them in an historical context — through a history of economic thought relative to value and price, distribution, political economy, or by the history of several basic economic problems and of economists' efforts to solve them.

POLITICAL-ECONOMIC OR SOCIAL-PHILOSOPHIC APPROACH

Advocates of this last approach remind us that all of the foregoing will fail to relate to the real economic world unless they are taught in the context of social-economic philosophy and politics. The most fundamental questions of all for the lay citizen concern political economy — "What is the proper role for government in relation to the economy? What kind of economy do we want?"

Politics, by which we mean the exercise of power, is central to an understanding of individual and social action relating to the economy. Economic philosophies are central to an understanding of why one policy is preferable to another. We simply cannot understand the economy unless we see it as an instrument by which an overt, covert, or unconscious power struggle is conducted over the sharing of values. Citizens cannot understand their roles in society until they see themselves as active participants in this power struggle. Students cannot learn to share effectively in the building of a better society if they are indifferent to their social-economic philosophy and unaware of agencies through which power may be exercised for the attainment of personal goals.

Views differ on how economic philosophy and politics might be made the focus for economics instruction. The prevailing view, of course, is that they should not; economics is a science which cannot and should not deal with normative or political matters. But advocates of a political economic approach deny that this is possible. One view is that economics should frankly be taught from the perspective of the economic philosophy of the instructor — perhaps an ardent, free-enterprise capitalist ideology or that of a modern liberal, a democratic socialist or of a Marxist. Another view is that students should be introduced to various economic philosophies. Students should see their own philosophy as an evolving ideology and should read the best thinkers who share their values. Economics teaching using this approach should aim not at indoctrination but at getting students to think through their own tentative views and to develop them.

Enough then on alternative approaches. But really, must one choose? Is it not possible to cover all or most of them? May they not complement one another? And are there possibly other alternatives that have been overlooked?

Unfortunately, in this world of many desirable economic educational goals, the opportunity cost principle holds as it does in an economy. A course that seeks to do all things may do nothing well. A course which is designed without a well-conceived purpose is almost certain to do all things poorly.

What Should a Principles Course in Economics Be?

G. L. Bach*

The principles course clearly is our most important teaching assignment. Here is our one big chance to teach economics to most of the people who go through colleges and universities. From two-thirds to three-fourths of all students we teach take only the elementary course and yet most evidence suggests that we are not doing a particularly good job of teaching the course.

Casual empirical evidence on how much our former students have learned is everywhere around us — in the newspapers, in the current public opinion polls, and in the comments of our leaders and the people on the street about economic issues.

Ask your neighbors whether they took a course in economics and what they thought of it. They will probably say (if my 20 years of experimentation is any guide), "Yes, we did, and it wasn't very good. We remember it as being terribly dull when it ought to have been exciting. We certainly wish now we had learned more economics, because we need it every day when we read the newspapers and go about our business."

There is a standing but sad joke among economists that we have to teach the elementary course over in all our intermediate and upper level courses, because students remember so little from only a year or two before. On the level of more scientific evidence, in the early 1960s, Professor Saunders and I conducted a nationwide study of all social studies teachers in high schools in the United States and found that eight years after taking college economics, there was no statistically significant difference on a national test (the Test of Economic Understanding) between those teachers who had taken the elementary course in economics and those who had never had such a course. Professor Saunders reports slightly more encouraging evidence in a more recent study of former college students. However, that doesn't change the basic picture that we need to do a better job in teaching the elementary economics course.

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GOALS

I wish to argue for a particular kind of economics principles course—one whose primary goal is to produce students who can and will think intelligently for themselves about economic issues five and ten years after they have taken the course and have left the campus. I want to put the stress on *students*, on helping them to think for themselves about economic problems and issues, and on developing their interests and skills so they can and will use economic analysis long after they escape the final examination. Economics is a way of thinking about problems, not a set of answers, and we ought to accept this fact in our teaching. Moreover, we might as well face it: If we don't get students interested and involved in economics in the elementary course, we have lost them forever; the "five-years-after" or "ten-years-after" test seems to me to be the crucial one as to whether we are doing a good job in teaching elementary economics.

To flesh out this overall goal, let me specify four more specific behavioral goals for the principles course. All of these subgoals are stated in terms of what the *student* should be able to do, not in terms of what the instructor should say or do.

Students should be able to:

- Develop an awareness of, and a continuing interest in, the major economic problems of modern society.
- Obtain a firm grasp of the few basic principles and analytical concepts necessary to think intelligently about economic problems for themselves. (Technical theoretical detail should be sacrificed in order to obtain proficiency in the use of the basic analytical tool kit.)
- Develop an independent ability to apply these analytical tools in thinking independently about economic problems (This involves placing major stress on the *process* of applying *economic concepts and principles* in solving [thinking about] economic issues).

- Learn to use and evaluate both qualitative and quantitative evidence when conflicting points of view are encountered on economic issues.

While these objectives may appear commonplace, they are really quite untraditional in the way they focus specifically on student behavior and student learning, rather than on the detailed economic subject matter of the course per se.

FOUNDATIONS FROM LEARNING THEORY

How can we achieve this basic goal of developing students' interests and abilities to do their own thinking about economic issues years after they leave the classroom? I argue that we must state instructional goals in behavioral terms — in terms of what we want the student to do now and later. To make sense of this proposition, we must have a foundation of how people learn, of what the psychologists call learning theory.

Experts on learning agree that there is no satisfactory general theory of human learning. Yet, a considerable body of evidence, much of it highly convincing, has been accumulated on what kinds of learning generally occur best under what kinds of circumstances or, conversely, what conditions are unconducive to learning. I do not presume to pose as an expert on learning theory. I do want to suggest a series of propositions which, from a review of the psychological literature, appear to be generally valid and which can be used as important foundations for course planning, given the general goals I have stated above.

IMPORTANCE OF MOTIVATION

Most psychological evidence suggests that the learner's motivation is the most important variable controlling the amount of learning that occurs. A related proposition is that reward is generally a stronger inducement to learning than punishment. People who are highly motivated to learn generally do learn; those who are not motivated seldom do. This has proven true in experiments with rats and with people, and in just about every circumstance one can imagine. It holds true for all ages, from small children to adults, though of course, the motivating factors may be different at different ages and for different groups. If we accept this proposition, it has sweeping consequences for the way we design our courses and the way we teach: Without effective student motivation, nothing else matters much.

THE COGNITIVE PROCESS: LEARNING, RETENTION AND TRANSFER

Turning then, to what psychologists call cognitive processes — the intellectual kinds of learning as distinct from attitudinal and motivational issues — it is convenient to look at the facts which appear to govern learning, those which govern retention, and those which govern learning transfer.

On Learning

Prompt, accurate feedback appears to be of critical importance to the learning process. That is, students must receive knowledge of how they are doing, if they are to learn effectively. This is the central proposition underlying so-called "programmed learning," but it can apply to all kinds of learning processes. The proposition seems to hold firmly with rats in mazes and with children and adults in a wide variety of situations.

Moreover, the acquisition of knowledge is faster and easier if the learning is meaningful (relevant) to the student. This, of course, appears closely related to the motivation point mentioned above.

Most experts suggest that effective learning involves active response. The student must *do something* — whether verbally in class, or in out-of-class discussion. Learning is not a passive process in which the student merely sits and "receives" information from a lecturer.

Finally, on the degree of guidance conducive to effective acquisition of knowledge, there appear to be several reasonable and well established propositions. These include:

- The more highly the learner is motivated, the less teacher guidance is required.
- The more complex the learning situation, the more valuable is instructor guidance.

- More teacher guidance is generally valuable in the early stages of complex learning processes and is decreasingly so in later stages as students are able to do more independent learning.
- Excessive teacher guidance, in the form of lecturing or otherwise telling people what to do, tends to violate the principles of feedback, which involves having students do something for themselves and then telling them how they have done in terms of results.

Broadly, a case emerges for a mixture, and for a changing mixture, between induction on the part of the student and guidance on the part of the instructor in most learning situations.

On Retention

Psychological studies on learning retention indicate that people tend to retain more of what they study when the subject matter is organized and meaningful. In contrast, retention levels diminish when the subject matter being learned is unmeaningful and unrelated. Anything that is rote-learned is likely to have a short half-life. Similarly, the retention rate goes up rapidly as material is "overlearned." That is, learning the same material several times, even though it may appear wasteful at the time, produces more lasting learning in most circumstances. Conversely, the retention rate is low on barely-learned materials.

On Transfer

While evidence on learning transfer is both conflicting and unsatisfactory, there is substantial evidence that transfer occurs most effectively when the process of problem solving is stressed, in contrast to stressing a particular technique. But evidence also suggests that people who take courses in formal logic or mathematics show no increase in "logical thinking" in applied situations over those without such formal training. There is also some evidence that verbalization of principles facilitates transfer.

This is by no means a complete list of what the experts know and are discovering about the learning process in human beings. But it seems to provide a significant psychological foundation for developing a course that would put its major stress on what the student learns; therefore, what the teacher does becomes secondary to that basic purpose.

PLANNING THE COURSE

Given our general goal for teaching economics and these propositions about learning, some fundamental things can be said about how to plan a principles course. First, the crucial focus should be on the students and what they will be expected to do upon completion of the course. What a teacher says or does should be governed by the test of how much the student is learning. Second, the course content should meet one central test: Will it help the student to think independently about economic issues five years later? This can be broken down into two questions: (1) Is the learning of general applicability to different problems which the student will face in the future? (2) As a practical matter, is it simple and important enough for the student to remember and use independently?

Since we know students learn and retain only a limited amount (in economics as well as other areas) in any day's work and in any class, it is essential that we pare down the content of the course to the core. For most economists, this will involve the painful process of giving up a lot of details that they think are intriguing and important. But if the student won't learn them and remember them for the five-year-after test, there is no real point in trying to reach them. The half-life of uninteresting and irrelevant niceties of economic theory is about as long as the half-life of the nonsense syllables which psychologists are fond of using in their tests.

Finally, it is essential that as teachers we know precisely what it is we want the student to learn. Unless we are clear about exactly what this is, it is very unlikely that students will somehow determine this essential core.

THE COURSE

There is, of course, no one ideal principles course in economics. Let me suggest, however, a general pattern that meets the general criteria I have just laid out. First, it seems essential to list the central economic concepts that we want the students to learn — the tool kit of

analytical concepts that students should be able to use for themselves five years out. Listed below are 20 such concepts for the entire course. Perhaps you would prefer to put some of them in the form of principles or simple models; either way, the central concepts will be clear to economists. They are:

1. Scarcity (limited resources) and need for choice (economizing)
2. Opportunity (alternative) cost — at individual, organization and national levels
3. Marginalism
4. Self-interest (including profits) as a motivating force
5. Voluntary exchange
6. Markets and market prices
7. Supply and demand
8. Competition
9. Principles of comparative advantage
10. Interdependence
11. "Optimal" allocation of resources — economic efficiency
12. "Market failures" (market imperfections, income distribution, etc.)
13. Externalities and public goods
14. Aggregate demand (and main components)
15. Aggregate supply (and potential productive capacity of the system)
16. Real and money income — price level change
17. Money and monetary policy
18. Fiscal Policy
19. Saving and investment
20. Economic growth

If the problem is to teach a one-semester or one-quarter course, I would probably give up some of these — for example, Numbers 11 and 12. These are important ideas, but something probably needs to go if we are to face the five-year-after test in such a short course. Remember that unless something is learned very well, it will probably not last. To teach the "optimal" allocation of resources and "market failures" in the usual fashion requires a large block of time that probably cannot be justified in the one-semester or one-quarter course. But, as an economist, you will have your own notions about which of these concepts are most dispensable.

A Student-Oriented, Real Problem Solving Approach in Economics

William Becker* and Craig Swan†

The analytical base of economics has expanded at an exponential rate since the turn of the century.[1] The areas of specialization within economics have similarly expanded to the point that no individual (Ph.D. economist or lay person) can claim expertise in more than a narrow range of the discipline — a range that varies from individual to individual in line with differing personal interests.[2]

It is unrealistic, therefore, to expect that a freshman or sophomore college student can become familiar with all the combinations of economic concepts and analytical skills now in use. However, to a large extent tools and concepts used within areas of specialization build on more limited numbers of basic concepts, making it realistic to expect that students can and should become acquainted with a limited number of basic economic concepts and skills.[3] These concepts and skills can then be applied to personal and social problems of interest to the students.

Differing institutional details and special aspects of a particular problem will often call for some modification in applying basic concepts. Learning how to apply economic conceptual analysis to "real problems" should be an important objective in a student's training at the introductory level. Economics is not a collection of ready-made concepts and conclusions but rather a method of analysis. As Keynes said:

> The theory of economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus of the mind, a technique of thinking, which helps its possessor to draw correct conclusions.

The purpose of this paper is to explore the above objective in terms of "real problem" solving applications, its multifaceted emphasis on the student's ability, and the use of basic economic analysis. It is worth noting that no attempt is made to argue for or against the traditional micro/macro breakdown in the principles course; it is the real problem, student-oriented objective which is central to our presentation.

REAL PROBLEMS

There are a variety of uses to which the phrase "real problems" may be put. Not all of these uses are what we have in mind.

Sometimes the term "real problems" is used to denote a fragment of the whole situation with artificial boundaries carefully drawn and controlled by the instructor: for example, teaching supply and demand analysis using *ceteris paribus* assumption. Often it means a made-up situation which may be consistent with an economic principle but not observable in the student's world: for example, the idea of the money multiplier taught through a single bank, single deposit and no withdrawal banking structure. Sometimes it is a prepared case study on an issue which was of concern to society or an individual last year or several years ago.

While an application of a mathematic formula or economic concept may be a valuable teaching tool in relating abstractions to reality, these applications are often so rigidly structured by the teacher that the student merely uses technique A to solve problem B. Such applications may be useful in developing familiarity with a particular technique, but they are incomplete in that they eliminate the need for students to search for knowledge and methods that are relevant to problems of individual interest.

Real problems in this limited sense may not prepare the majority of students to cope with

[1] See Lovell (1973) for empirical evidence on advancements in economics. Also note that the work of economists, unlike other social scientists, is now recognized for Nobel prize honors.

[2] For examples of areas of specialization see the tables of contents of the May issues of *The American Economic Review* (*Papers and Proceedings*).

[3] This argument for minimum content coverage is in line with Bach's views found in this monograph and Fels (1974, AER).

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complicated, non-structured, and many-faceted problem situations met in life outside the classroom.

In our view a real problem connotes a situation in which there is an impediment to some desired end, or a contemporary dilemma which is of interest to the student; it need not have a unique solution or be associated with a given and pre-structured method of analysis. Is the university registration system time-consuming or prone to error? Are student loans hard to get? Is college a good investment? Are state liquor or drug laws reasonable? Does capitalism or egalitarianism lead to the fair distribution of resources?

In our real problem solving environment, central problems or dilemmas cannot be selected or given by the professor as they would only reflect the professor's image of the big problem. While student problems may be poorly stated, they have a greater likelihood of challenging and motivating the student as they reflect the image of the world from the student's viewpoint.

STUDENT ACTIVITIES

If one asks an economist what the principles course should be, a typical response will probably include reference to what students should be given: a feeling for "this," a knowledge of "that," and a sense of "whatever." John Gurley (1975, p. 431) articulated such a response:

> Students would be given *a feeling* for the relation of theory to practice, *some sense* of history, and *the knowledge* that systems of ideas do not drop out of the sky (emphasis ours).

Learning theorists such as Gagne (1965) and Popham (1971), however, have long argued that a course objective must be defined in terms of student activity if in fact a change in student behavior is to be expected. Assuming we do not want students to be mere receptacles of economic principles, as Gurley's statement seems to imply, the objectives of the economics principles course must be student-oriented activity. Regardless of the content covered or the instructional method employed, emphasis must be placed on students and what they are going to do for concept skill reinforcement and success feedback. For example, learning theory implies that instruction on interest rate determination is neither a necessary nor a sufficient condition to insure that a student can undertake intelligent economic analysis and assessment of the personal or social implications of a state usury law. Likewise, a professor's demonstration of economic analysis of usury laws is neither a necessary nor a sufficient condition to insure that a student can transfer the analysis of price ceiling effects to other areas of interest such as fair trade laws and oil price controls.

We agree that the most effective learning comes *through direct activity on the part of the student*. It is through individual application that the student learns how such an analysis and related economic concepts are transferable across the large set of current problems and issues.

Real Problem Assignments

At the very beginning of the principles course, students should be informed that they will be expected to apply what they are "given" in class to real problems of interest to themselves. Alternative time tables for completed activities can be given to the students.

For three reasons, the problem should be selected by the student within the first couple weeks of class. First, it gets students started early in the term and lets them know what is expected of them; second, it gets students "ready" to accept that which is coming; and third, it provides early feedback to the professor as to what is currently of interest to students.

Telling the students at the outset exactly what they are expected to do rests on the supportable premise that teaching should not be a guessing game for students. Letting students know what they need to do in the course provides an "advanced organizer." The students do not have to waste time trying to "psych-out" the professor.[4] They hopefully become "ready" at the

[4] For a discussion of the advanced organizer and its use in clarifying the instructional objectives of a course, see Majer (1975).

start of the course to accept basic economic conceptual relationships because they know that they will have to use these as the basis for their own analysis.[5]

Concentrating on the student rather than on the teaching process will tend to force the professor to answer "What is the initial state of mind of the student?" Requiring students to select their own problem for analysis enables professors to sharpen their perceptions of what questions the students want the course to enable them to answer.

Defining Real Problems

Student-selected problems will not usually be well defined. Often they will not lead to clear-cut avenues of investigation which will help in arriving at a practical solution. The variables influencing the problem will often be many and difficult to discern; they may not be easily quantified. Dealing with the problem will involve observation, personal discussions with experts, value judgments, data processing, decision making and quantum leaps from theory to conclusions.

Students will have to recognize and communicate their difficulties; they will have to be able to reach into their limited tool kit of concepts and analytical skills to relate their research efforts to their instructor. If this effort is successful, the entire educational background of the student will be brought to task and, in turn, reinforced. The student effort, however, is in line with situations the majority of students will face outside the classroom and after college. In attempting analysis the student learns that the analytical process is long term and involves many phases of action and stages of partial solution.

Tackling an ill-defined, nonstructured, complex and multifaceted real problem requires more than a student's ability to handle the range of specific questions given in a classroom test or classroom presentation. The most important student task is to make sense out of vagueness.

[5] This argument has been put forward by Boulding (1975).

Professor's Role

In the student's problem-solving efforts, the professor's role becomes that of consultant and advisor as opposed to lecturer. Teachers are able, however, to modify the student's initial images as they assist the students in their attempts to:

- Clearly define the problems
- Identify alternative goals
- Identify economic concepts and principles for analysis
- Analyze goals and policy options
- Evaluate the options according to each of the goals
- Identify the possible shortcomings of simple economic analysis in terms of providing a precise solution
- Form a conclusion or solution to the problem based on evaluation, trade off between goals, values held, and degree of uncertainty in economic analysis
- Report the analysis and conclusion in writing.[6]

As noted earlier, students need to be notified that they are expected to come up with a problem of personal interest at the start of the course. Because of the time required on the part of the professor and student in a real problem solving situation, a student should only be expected to select, analyze and report on one, or at most two, real problems per quarter. At the same time, since learning a skill requires structured practice, students should be given experience in problem solving through class discussions, short case studies, examinations, short position papers, and the like. But it must be remembered that such practice, even with quick and reinforcing feedback, is not enough. If students are to learn to successfully cope with real problems, they must first attempt such. An academic learning environment is the ideal place for learning to cope with real problems. They need to select a problem they think they can solve and have an environment which supports their efforts.

[6] Professor Fels at Vanderbilt University has been experimenting with a similar approach in prepared case studies, Fels (1974, *Journal of Economic Education*).

CONTENT COVERAGE

The belief that it is not worth much to know a little bit about everything and be a master of nothing has been around academia for ages. In accord with such a belief, the straw man set up and then knocked down is the principles course which covered all of Samuelson in two semesters via a straight lecture approach. In rebound, A. J. Rogers-type textbooks — in which simple supply-demand and consumer surplus demonstrations are overworked — and Rendigs Fels' minimum concept, prepared-type case studies — in which content selected on the basis of "its usefulness to the layman . . . its benefit-cost ratio" — are given as the key to content coverage. While such approaches to content may be intuitively appealing they do not provide operational rules for content selection and will not lead to universal approval by practicing economists or laypeople. Beyond the necessity of simple supply-demand and opportunity cost understanding, there will never be general agreement as to what economic principles and concepts are needed for economic literacy. (The use of marginalism in describing consumer behavior is used extensively in research yet it is questioned by Mishan (1973); Cambridge, England economists as opposed to Cambridge, Massachusetts economists will question the relevance of classical principles of income determination; and so on).[7]

These examples are not meant to cast doubts on economic theory and its relevance to problem solving; quite the contrary. It is simply intended to remind the reader that while sharing a common box of tools, economists may approach the same problem in different ways. The teachers' task in a principles course is to be well-versed in these alternative views even if they personally reject some of them. In the student-oriented, real problem solving approach to the principles course the professor needs to be able to assist a student whose analytical bent lends itself to a creditable alternative.

A professorial ego and hell-bent desire to convince students in one semester that the professor has the truth is not conducive to student learning in the problem solving situation. Furthermore it is apt to have unfortunate short and long run results.[8] If, for example, the student, on the basis of conversations with a bank or business school accountant, postulates that a bank makes short run decisions on the basis of cash-flow analysis, and not profit maximization, it may be fruitless for the professor to force simple maximization theory on the student's analysis. The best the professor may hope for is to assist the student in analyzing the implications of short run cash-flow decisions as regards profit maximization. While cash flow analysis was not set as a key concept of the course, it is something that interested the student. By reacting in a flexible manner to students' interests, the professor stands a better chance of helping students understand the implications of profit maximization.

As the above example suggests, the real problem solving approach does not imply that the student is restricted to "key" economic principles identified by the professor. It does imply that the professor is willing to assist the student in mastering concepts which will lead the student to a creditable analysis and possible problem solution. It also implies that the professor initially provides the student with a few concepts and analytical procedures so the student can get started. After that, however, students should be encouraged to select the relevant economic principles which they need to analyze their problems. The number of concepts the professor chooses as central to economics may be viewed as playing a secondary role in the real problem solving situation — secondary to the extent that it is the student's selection which determines what is used in the problem analysis.

For the instructor to select course coverage on the basis of anticipated student problem selection would be a mistake; real world problems are too numerous. As with economic concepts,

[7] The Cambridge debate is reviewed in G. K. Harcourt (1972).

[8] In the short run students may wonder why they should study economics if all the answers are already known. In the long run the student is apt to be disillusioned with economics as old answers do not seem to work in new problems.

problems which were of interest to students last year may be dead this year. Rather, the professor should select content on the basis of its transferability across diverse problems as well as its importance in forming a foundation upon which the student can build. Unlike Fels' supposed "test" for content coverage in the principles course, " . . . the test is its (the content's) usefulness to the layman . . .," *this criteria* is given as being only suggestive. It is more in keeping with Boulding's view of economics, "where the understanding of one part depends very much on the understanding of another . . .." Content which may not be of direct usefulness to the layman may still be appropriate for the introductory course if it is fundamental to economic theory. The theory of consumer choice, because it is "a pillar of economic theory," would be worthy of consideration under our criteria even though Fels believes it "is of too little use at an elementary level." On similar grounds, in the introductory macroeconomics course, consideration of national income accounting is worthy of consideration while one sector GNP multiplier equation manipulation may be difficult to justify as transferable across problems or as providing the foundation upon which students can build.

IMPLEMENTATION BARRIERS

If it is reasonable to propose that the central objective of the introductory college courses in economics should be a student-oriented, real problem, minimum concept program, then why hasn't such a course already been adopted by major universities and colleges? We believe the answer can be found in four reasons: student demand, instructor time and competence, academic reward structures, and the axiomatic development of the economics discipline itself.

Student Demand

Enrollments in economics courses are increasing dramatically. In the face of such overwhelming demand it is only natural that pressures for changes in courses are less strong. The dictum of the marketplace suggests that if demand is strong, we must be doing something right.

The case of a student-oriented, real problem solving approach to economics is not, however, based on enrollment trends but on the fundamentals of learning theory. It is a bonus that such an approach is also likely to increase enrollments. The present increase in enrollments may be only a counter-cyclical deviation on an otherwise downward trend. In fact, we remember that just before the current period of stagflation there was much discussion of the *secular* decline in economic enrollments.

Instructor Time and Competence

Our real problem solving approach to introductory economics is clearly not a time minimizing approach from the instructor's viewpoint. We are calling on instructors to do more than meet their classes for three or four hours a week to present a prepackaged set of lectures. Helping students to formulate problems and then develop the necessary skills to analyze these problems is a time-intensive process. As a result, many will dismiss our proposal as being too costly. Instructors are apt to conclude that the opportunity cost of their time is simply too high to justify the necessary expenditure of time.

At large research-oriented universities much of the teaching in introductory economics is done by graduate students. First on their list of priorities is passing comprehensive examinations and completing their theses. An extra hour spent with students is an hour less spent studying or on one's thesis. The implications for the graduate student seem clear.[9]

The real problem solving approach to principles also calls for flexibility and a wide-ranging background on the part of the professor. Professors must be flexible enough to adjust their preconceptions of what the student should do to the student's own interest. Further, the professor must have a sufficiently broad background to be able to relate to what will undoubtedly turn out to be a wide range of student interests. There is a serious question as to whether professional training in economics and the existing

[9] In recognition of the incentive system for graduate students, participation in the University of Minnesota's graduate teacher training program for Ph.D.s in economics is now given as a condition of employment for Teaching Associates in the principles course, Lewis and Becker (1976).

reward structure for academic activity is not destructive of the development of such wide-ranging individuals.

It is easy to understand how graduate students may feel especially ill at ease within the format we are discussing. Graduate training places a heavy emphasis on rigorous, mathematically-oriented training in formal economic theory. Few graduate students have much training in more than one or two applied fields. It is in these applied areas that students are most apt to pick their own problems. Graduate student instructors may thus feel insecure and out of their depth if called upon to provide guidance in other applied areas. Similarly, once out of graduate school, publish-or-perish pressures on new instructors tend to concentrate instructors interests and attention within a rather narrow area of the discipline.

The Reward Structure

Once out of graduate school it does not take the new instructor long to realize that promotions and higher salaries come primarily from research activities, not from teaching. Thus income-maximizing professors rationally devote their primary energies toward research and away from teaching.[10] Implementation of our program must be associated with a change in the reward structure that recognizes student outcomes.

Once again the only practical way we see that a research-oriented department can implement our program is to recognize the value of eclectic faculty members. For the purpose of managing a student-oriented, real problem introductory course, professors' demonstrated or potential ability to publish in diverse areas of economics should be rewarded, rather than rewarding the author of publications in a single, specialized area. While a high diversification with minimum concentration may not be appropriate for a faculty member at the graduate level, it is ideal at the principles level.

[10] For the significance of time input to teaching versus research and its relationship to the reward structure, see Becker (1975). Empirical estimates of the contribution of research and teaching to salary have been provided by Siegfried and White (1973) and Katz (1973).

Development of the Discipline

Finally, the scientific basis and general equilibrium nature of economics may also create pressures that work against a real problem solving approach to economics. Introductory students will only, of necessity, be capable of partial analysis. Some may well argue that any partial analysis is by definition incomplete and thus likely to be misleading. Rather one should start from the very beginning to build the foundation for an eventual general equilibrium analysis. In order to be general and value free, this sort of development by necessity becomes abstract and builds logical consequences from minimum assumptions.

We would argue that this approach, while perhaps intriguing a few very bright, mathematically-oriented students is apt to destroy the interests of most beginning students in economics. We don't mean to argue that the principles course should be organized to maximize the number of majors. Rather we feel that an understanding of economics gives one an important perspective on both individual and social problems. The principles course may be the best place economists have to let noneconomists find this out for themselves.

We would guess that most students come to an introductory course in economics with a fuzzy, if not misguided, notion as to what economics is about. If the introductory course turns these people off, they are probably lost forever. They are apt to continue to dismiss economists, and advice founded in economics, as irrelevant.

On the other hand, if these students can come to understand the advantages and limitations of economics, they are apt to be much more receptive to the economic analysis of the professional economist whether or not they pursue education in economics. The real problem solving approach promotes active student learning of the advantages and limitations of economic analysis from first-hand experience.

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Objectives of the College-Level Principles of Economics Course

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INTRODUCTION

College-level principles of economics courses carry a tremendous burden of responsibility. It is no exaggeration to say that they play the key role in determining the level of economic literacy achieved by the general population of the United States.

The economic literacy problem is staggering. Consider first that minority of the adult population that receives some sort of higher education. A very few will major in economics. A sizable proportion, perhaps 25 percent of the total, will take at least the principles course. But most of those attending colleges and universities, perhaps 75 percent of the total, graduate without having had a course in economics. Add to this group the majority of the adult population that has never attended a college or university and the size of the economic literacy problem becomes apparent.

Most of those who have not been exposed to a college or university principles of economics course learn what economics they know from (1) high school social studies classes, (2) the news media, and (3) experience. With regard to all of these sources, those from whom the public can learn most are the small minority who have had some training in economics in institutions of higher learning.

The fountainhead of economic literacy, then, becomes the college and university principles course. It plays a key role in determining the number of students that will become majors in economics. It is an important determinant of how many nonmajors will take further course work in economics. It establishes the initial literacy level of those who take only the principles course. Indirectly, it exerts a significant influence on the economic literacy level of those who have never had systematic training in economics.

An important reason why an economic literacy problem exists is that we have done a very poor job in colleges and universities with the principles course. We have traditionally treated it with disdain. The most experienced and competent economists on academic staffs are assigned the prestige graduate and upper division courses. The principles course is relegated to assistant professors, instructors, and teaching assistants. When scarce faculty resources are stretched over large numbers of students, the principles course is always the one that gets the largest student-teacher ratio. It is not surprising that we reach very limited numbers of students and that we turn them off by the thousands.

If we are genuinely interested in advancing the level of economic literacy in the U.S., a reexamination of the objectives of the principles course is in order. Once some consensus is reached on objectives, much remains to be done to restructure the course to attain objectives. It is encouraging to note that an increasing number of economists and departments of economics have been moving in this direction over the last few years. This paper is an outgrowth of a major restructuring effort that began at Oklahoma State University in 1971.

OBJECTIVES

A clear statement of the objectives to be attained in the principles course is essential at the outset. After some 20 years' experience with a traditional principles course, and five years' experience experimenting with a redesigned and, I hope, substantially improved principles course, I suggest that an appropriate set of objectives is (1) to attract college and university students into a systematic study of economics, (2) to provide a usable level of economic literacy for those who do not go beyond the introductory course, and (3) to provide a sound foundation of principles for upper division economics courses. Suppose we consider each of these in turn.

To Attract Students

Over the last 15 years it has become increasingly evident how little the administrations of federal and state governments, congresspersons, legislators, and news media, and the general public know about the U.S. economic system. The immediate consequences of mass

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economic illiteracy are now well known. The most important ones are unemployment and inflation. Secondary consequences likely to evolve from misguided policies intended to cope with immediate consequences include the demise of the market system and the individual freedom that have characterized the U.S. economy since 1776.

If a private enterprise system and the concomitant individual freedom that such a system both permits and requires are to survive, it is essential that those who live in and who vote in that system be knowledgeable about the nature of the system. The principles course provides a unique opportunity for the mass dissemination of information on basic economic cause-effect relationships, how the system operates, and what it can and cannot do for us.

Our goal should be nothing short of attracting every college and university student into the principles course. I am not suggesting that the course be made compulsory. If it is an elective course and we pursue the goal, then our economics departments will be required to put forth their best planning efforts and their best teaching talent. The course should be so challenging, interesting, and useful that students believe they cannot afford to pass it by.

To Provide Literacy

The principles course must provide a simplified, relatively complete, and usable picture of the economic system and how it operates. The model will be simplistic — it must be — but it can be useful at the same time. The content of the course must be subjected to continuous scrutiny with an eye to eliminating those topics and principles that contribute little to the student's economic literacy and to expanding the discussion of those topics that contribute much.

With regard to simplicity, how important is it that beginning students be introduced to such things as *IS - LM* curves? Most will not understand them. Even those who understand the concepts will not be able to use them in any meaningful way. I suggest that it is much more important for beginning students to learn that federal deficits and relatively large increases in the money supply are expansionary, while surpluses and decreases (or relatively small increases) in the money supply are contractionary in nature. It is much more important for beginning students to know that demand curves slope downward to the right than for them to learn the meaning of the tangency conditions between budget lines and indifference curves.

With regard to the completeness of the picture of the economy, there are several relatively simple models that tie it all together. The hoary circular-flow diagram can do the job, showing markets for goods and services, markets for resources, and their interrelationships. The introduction of leakages and injections can turn it into a simple macro model.

What we teach in the principles course must be useful to students — now, next week, and next year. They should know that effective price ceilings cause shortages and that effective price floors generate surpluses. Knowledge of principles like these are useful in evaluating the impact of an increase in minimum wages in the face of an eight percent unemployment rate. They also help students evaluate such things as the impact of rent controls on the supply and distribution of housing.

What we use, we retain; what we do not use, we lose. Attainment of the economic literacy goal requires that the content of the principles course be oriented more toward concrete and useful principles and less toward abstract principles.

To Provide Foundation

Some of our principles students will indeed take upper division work in economics and a few of these will actually become economics majors. So it is essential that the principles course provide them with an adequate foundation for further work. In many economics departments we see separate principles courses for majors and nonmajors, implying that the goal of literacy for those who go no further than principles is different from the goal of providing a good foundation for those who do. I have seen no evidence that supports incompatibility of both goals in the same course. In fact, I have a good bit of seat-of-the-pants evidence that they are entirely compatible.

Many principles teachers conduct the course entirely as though they are preparing students for further work in economics. They attempt to push students as far into more advanced analysis as the students are able to go. I am aware of an extreme case in which students with a calculus background were separated into a special section of principles in which they used such advanced materials as Baumol, *Economic Theory and Operations Analysis* along with Dorfman, Samuelson, and Solow, *Linear Programming and Economic Analysis*. A very few students will rise to such pressure and become first-rate economists. Most will be turned off by the apparent uselessness of the abstractions they learn and will never take another economics course. My own experience in teaching intermediate price theory is that students retain very little of the abstract theory of consumer behavior, theory of the firm, theory of production, and theory of distribution that they presumably learned in the principles course.

It appears to me that a principles course aimed at providing economic literacy for those who do not go on will also be adequate as background for upper division work. The prime prerequisite for upper division courses is not the ability to manipulate abstract principles, rather it is a general understanding of basic cause-effect relationships, how the system hangs together, and a driving interest in things economic. As students broaden and deepen their study of economics, they find the more esoteric and abstract principles useful, meaningful, and interesting.

APPROACH

The attainment of the foregoing objectives means abandonment of the traditional principles course, at least as it has been taught for the last 25 years and is being taught in most institutions today. The new course structure that takes its place can take any one of several alternative forms. My discussion will center around the structure that we have evolved at Oklahoma State University. We will consider (1) the coverage, (2) the level of difficulty, and (3) the generation of student interest by such a course.

Coverage

Invariably, in the traditional course, we have tried to do too much and have succeeded in doing too little. What beginning student can possibly grasp in depth the range of economic principles covered in Samuelson, Mansfield, or McConnell — good though these books may be? Traditional principles texts are economic encyclopedias containing far too much economics for most beginning students, yet we instructors rush from topic to topic trying to cram it all in, analyzing a string of abstract techniques that we never have time to apply to the real and interesting world about us.

The restructured course should contain a much more modest list of principles. It should contain only those key concepts necessary for basic economic literacy and as foundation material for advanced courses. My choice for such a list follows:

(1) The nature of the economic problem
(2) Production possibilities and alternative costs
(3) Collective consumption and individual consumption
(4) The public sector and the private sector
(5) The nature and functions of markets, demand, supply, and prices
(6) Competition and monopoly
(7) Resource allocation
(8) Spill-over benefits and spill-over costs
(9) Income distribution
(10) Economic instability
(11) Elementary monetary theory
(12) Elementary fiscal theory
(13) Elementary national income analysis
(14) Inflation
(15) Unemployment
(16) Stabilization policy
(17) Growth and development

Even this list may be too long for a six-hour principles sequence. We must cull it continuously with a view to eliminating what is less useful; concentrating on that which is more useful.

Difficulty

Students find the traditional course difficult for two reasons. First, instructors attempt to push beginning students, who lack institutional

background, too far into abstract reasoning. In far too many traditional courses, instructors expect students to perform at intermediate levels. Second, the range of principles covered is so wide that inadequate time is given to the development of each. The combination of these two factors makes the principles course a very frustrating experience for both students and instructors.

The restructured course with a narrower range of concepts can lead to more realistic expectations and levels of performance. It need not be a watered-down course. But students need to learn to walk before they can learn to run. If we do a good job of teaching the 17 concepts listed in the preceeding section, using demand-supply and simple macro models, we can make our students extend themselves intellectually as well as provide them with useful tools of analysis.

Interest

To generate and hold student interest must be the most difficult part of college and university teaching. In my judgment, three ingredients are necessary: a logical, integrated course structure; repeated demonstration of the usefulness of learning; and a competent instructor.

Several alternative course structures can provide what is needed. We have achieved some measure of success by dividing our six-hour principles sequence into two courses, a three-hour, issues-oriented course plus a three-hour, theory-oriented course. Each is a complete, integrated course. The first is entitled "Economics of Social Issues" and systematically introduces principles via a set of ten to 12 important current issues. The second, "Introduction to Economic Analysis," uses a theory framework as its integrating feature.

In the issues-oriented course, the issues are sequenced to provide a logical development of elementary principles. With each issue we first develop the public's concept of the issue. Next we introduce and develop the elementary principles valuable in the analysis of the issue. Then we apply the principles to the issue in an attempt to determine the economic dimensions of the problem and to investigate possible solutions.

In the theory-oriented course we are somewhat more conventional. We work through an integrated-but-limited set of elementary principles applying them over and over to current economic problems.

But the key element in achieving and holding student interest is the course instructor. We make use of our best talent in the principles course, using for the most part experienced members of our professorial staff. We make limited use of teaching assistants in the theory-oriented course.

One can never be certain how successful efforts of this kind are. Objective data are hard to obtain and quality control over time is difficult to achieve. Nevertheless, questionnaires regularly completed by students, feedback from college advisors, an increasing number of economics majors, and increasing enrollments of students in economics classes, indicate that at least a modicum of success is ours.

SUMMARY

The college and university principles of economics course carries a great responsibility for the economic literacy level that exists in the United States and the course objectives should be set with this responsibility in mind.

The important objectives to be attained are (1) to attract large numbers of persons into a systematic study of basic economics, (2) to provide a usable level of economic literacy for those who take the course and (3) to provide a sound foundation for those who want to do further work in economics. These are not incompatible objectives. Their attainment does require that we reassess what we have been doing in the principles course. Specifically, we should (1) reduce substantially the range of concepts covered, (2) make sure the level of difficulty is appropriate for beginning students, and (3) design a course format that insures a logical, integrated, highly useful study for students.

Curriculum, Welfare, and the Introductory Collegiate Course in Economics

D. Bruce Johnstone* and Darrell R. Lewis†

The introductory collegiate course in economics has been the object of perpetual abuse, frequent constructive examination and criticism, and a small but growing body of empirical research. Yet, students at most institutions continue to be "turned off" by the introductory course, and the adult population continues to exhibit an appalling economic illiteracy. Most important, the long-standing cry for a resolution of the goals and a limitation of content coverage remains unheeded in the overwhelming majority of colleges and universities.

One reason for the apparent failure of the introductory course to respond to criticism is the lack of any systematic examination. Past and current literature has been preoccupied with disclaiming the villainous coverage, with shuffling around chapters and topics, with alternative approaches such as "problems" or "case study," and with alternative techniques and media such as programming, simulation, instructional television, and computer-assisted instruction. Only occasionally has serious attention been given to the matter of *goals* and goal priorities, and only rarely has the *content* of the course—as opposed to techniques and approaches of teaching—been critically examined.

The major aim of this paper is to present a systematic examination of the introductory economics course: relating goals, content, and techniques to one another as well as to the nature of the discipline and to our understanding of the teaching-learning process.

The second objective is to illustrate the potential for the use of "economic perspective" in the critical analysis of a course or curriculum. Although we implore and expect our students to develop a good method in thinking about economic problems, we generally have been remiss in applying good methods toward the consideration of teaching as a productive process and toward knowledge as a commodity. Education absorbs productive resources—time, expertise, energy, materials, and facilities. Alternative ends are served by various approaches and emphases, each end having some, albeit elusive, opportunity cost. To educate is to choose among alternative goals, content, techniques, and materials. If we accept rational choice as the *raison d'etre* of economics, we are obliged to apply that method and perspective to our classroom behavior. In this sense, our examination of the introductory course is not only *about* economics; it *is* economics.

The first part of this paper is an attempt to provide a "systems" overview of the curriculum and its three major dimensions: goals, content, and techniques and resources. The theme of this section is not only a plea for a systematic consideration of these interrelated dimensions, but for a shift in the allocation of innovative and evaluative efforts away from techniques and toward the more fundamental questions of goals and content.

The final section is an application of the above paradigm to the introductory collegiate course in economics. An attempt is made to define an economic perspective—the capacity to think economically—and to consider some implications for course content which would follow a serious commitment to this economic perspective as the overriding goal of the introductory course or sequence.

THE WHY, WHAT, AND HOW OF A CURRICULUM

Curricular Goals

Consider, first, the goals of a course or curriculum. Probably no question is as frustrating to a college instructor as: What am I really trying to teach? Or, functionally: What are my students able to do differently upon successful completion of my course? The typical response to such a question will pay homage to a list of goals, including an understanding of the essential concepts, a feel for the discipline and its mode of inquiry, and an ability and a predisposition to relate this learning to other disciplines and to "relevant issues."

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Taken individually, such goals are unassailable. As a goals set, however, which purportedly establishes the objective of a course or curriculum, such a response is grossly inadequate. The economist—nourished on scarcity, allocation, optimizing, and trade-offs—should be the first to recognize that an educational endeavor cannot simultaneously maximize every element of a goal set. Among all goals which are not redundant there is *competition* for instruction time and resources. Among many goals there are, as well, subtle *conflicts*—essential incompatibilities where the maximization of one goal would deny the maximization of another even in a world of unlimited educational resources.

Regardless of published course descriptions or statements of goals, instructors reveal an actual, or operational, set of goal priorities by what and how they teach, the feedback they seek and to which they respond, and the criteria by which they evaluate their own teaching. We can only hope that these operational goal priorities will be resolved with some semblance of rationality—by which is implied a knowledge of the trade-offs (the educational production possibilities), a rationally ordered set of outcome preferences, and an impulse to "minimax" the total endeavor given a set of benefit-cost criteria.

In fact, however, instructors will probably teach in whatever way: (a) is most congruent with their experience and training—the content and technique which they were taught in college and graduate school; (b) minimizes the cost of time, insecurity, and uncertainty; and (c) is most susceptible to familiar techniques of evaluation. It follows, then, that the operational priority of most course objectives will tend to stress the familiar and the assessable and will almost inevitably be dominated by the recall of traditional content.

Curricular Content

The content of a course or curriculum is that which is to be learned in furtherance of a set of objectives. "Content" is a large and rather unwieldly notion, somewhat tautological in definition and at times too familiar to be examined and analyzed beyond trivial generalities. However, content is an important notion, largely because it is so seldom truly examined and because it is so often confused with the strategies or techniques of teaching and learning.

One way of considering content is through the taxonomical levels prepared by Benjamin Bloom and his associates (1956). They categorized knowledge (as distinct from intellectual abilities and skill) into: (a) specifics or recall, (b) ways and means of dealing with specifics, and (c) universals and abstractions. This taxonomy, with its many subcategories, is presented as a hierarchy, and many educators attach a value or "worth" connotation to the levels of the hierarchy. Thus generalizations or theories from the universals and abstractions level are often considered distinct from, and superior to, the definitions, facts, events, or descriptions from the specifics level.

There may be some validity to the greater worth of higher-level knowledge, but in general, such judgment of worth or importance is not a fruitful approach to the analysis and evaluation of content. For example, higher-level knowledge is often assumed to be more intrinsically motivating, yet students—their protests to the contrary—often prefer to be held accountable for facts. Principles and generalizations are probably more easily learned and readily retained than are facts and description, although it is extremely difficult to ascertain how much of that knowledge and experience which we summarize and symbolize by a generalization is ever really known by a student. We can say quite safely that universals and abstractions are more transferable. Yet, the allegedly greater "power" of higher-level knowledge—i.e., the capacity to generate new knowledge and to insure and sustain further intellectual growth—is only partly true. To the extent that new knowledge is formed inductively, one might argue that lower-level content is knowledge of greater worth.

A more fruitful discussion of kinds or levels of content might consider the ways in which content at various levels fits into *learning sequences* and the points at which these sequences touch upon learning goals. For example, definitions, events, facts, statistics, or conventions may be deemed essential as part of the

foundation of a sequence which is to culminate in a generalization or a principle. The student, we might say, ought to know the lower-level content because we have set the higher-level knowledge as an explicit learning goal. On the other hand, generalizations and abstractions may be quite meaningless unless they culminate in the understanding of specific events or phenomena—the sequence thus progressing deductively from higher to lower levels and touching upon the learning goals at the most specific level. Probably a spiraled sequence is a more valid description of most curricula— deductive learning generating some of the raw material for further inductive learning and so on.

Whatever the shape of a learning sequence or wherever we choose to start, we should be able to consider the "essentiality" of any constituent element of that sequence. That is, an element, or piece of knowledge, may be more or less essential *to a given sequence*. The knowledge may also be more or less essential *as a learning goal itself*, regardless of its position or role in the sequential learning of further knowledge.

This latter function does not prescribe any specific piece of knowledge. This is not to say that content selection for such purposes is wholly arbitrary. Yet, neither is there much evidence of a rational selection of such content in most curricula—rational implying, as described above, an awareness of alternatives, trade-offs, externalities, etc. True, very little content found in colleges and universities today is meaningless or valueless. A great deal of content, however, is more arbitrary than we often care to admit even when we have taken the trouble to rationalize and verbalize our learning goals. The ever-more-common cry of "irrelevance," we would suggest, is largely a reaction against teaching content as though it were essential when, in fact, its selection is little more than a perpetuation of academic tradition or instructors' "tastes."

A word should be said about those educators who claim to teach not for content at all but for methods, habits of thought, or modes of inquiry. Very often, their teaching will belie this assertion. It is possible, of course, to teach the principles of Aristotelian logic, the reference tools of the economic-historian, some mathematical principles of econometrics, or the elements of hypothesis formulation and testing. Such skills, however, are rarely "taught to" directly. More often, the teacher simply demonstrates or uses these methodological skills in classroom lectures and expects the students to know the principles already, to pick them up on their own (so as not to waste class time), or to assimilate them by sitting quietly and watching professors practice their art.

Even if the intellectual habits or modes of inquiry were to be taught directly, they would, of course, still constitute content—now in the upper ranges of our taxonomy and identified as intellectual abilities and skills. Methodology would still, as well, depend upon lower-level content for illustration and practice. Finally, it is quesionable how much method can be learned apart from the concepts and generalizations which form the structures of the disciplines. To be sure, a way of thinking, a respect for objectivity, or a love of learning are all valid and desirable goals of higher education. They may still be the most important, or they may be, in the end, all that really can be learned. But they do not absolve us from the responsibility for a rational selection of course or curricular content.

Curricular Strategy, Techniques, and Resources

Most curricular revision and experimentation does not make substantial changes in course goals or content. Attention, rather, is typically focused upon the third dimension of the curriculum which includes strategies, techniques, and resources. Course instructors have at their disposal alternative teaching strategies such as a problems, case study, historical, institutional, or survey of principles approach (most of which imply distinctions in content). They have an arsenal of specific techniques such as lecture, tight or open-ended inquiry, programmed learning, role playing, gaming and simulation, or independent study. Finally, the teacher has a great variety of materials and media upon which to draw, including texts, readings, paperbacks, films, tapes, television, artifacts, and

hard and software for programming or for computer-assisted instruction.

In theory, of course, strategies, techniques, and resources should be chosen for their congruence with the established goals and content, the predisposition of the instructor, and the abilities and interests of the students. In practice, however, programmed learning, computer-assisted instruction or the instituting of a problems approach often become the proverbial dog-wagging tail.

Recent surveys of research on college teaching methods, techniques, and resources by Joseph Axelrod (1965), Ivar Davies (1973), Robert Travers (1973), Paul Dressel (1969), and Robert Dubin (1969) have all stated quite emphatically that " . . . changes in form alone—old content poured into new molds—has been a trap for many colleges during the first half of the new era."[1] They unanimously and rather pessimistically concluded that almost all of the studies focused upon our third dimension of the curriculum (strategies, techniques and resources), describing most of these as merely "tinkering,"[2] and with almost universal research results showing "no (statistical) differences (in student performances) that amount to anything."[3]

All of this is not to deny the validity and the worth of experimenting with class size, programming, and the like. We need, in fact, a great deal more of this. Nor must all curricular revision proceed in perfect sequence from goals to content to strategies, techniques, and resources; surely the discovery of a highly motivating strategy or technique ought to have some effect on our conception of what ought to be taught. Our thesis is simply that there has been a serious inbalance in the attention given these three dimensions of a course or curriculum, and that an optimal strategy of curricular reform must afford a far greater attention to goals—to their trade-offs and operational priorities—and to the selection of appropriate course content. Let us turn, now, to an examination of the introductory collegiate course in economics from the perspective of this thesis.

Goals of Introductory Economics

What are the goals of the introductory collegiate course in economics? Survey data from the American Economic Association's Taylor Report suggested that "training in theoretical analysis" was the primary objective in 1950.[4] The study concluded that the introductory course typically suffered from a great ambivalence as to its proper objective and that the solution was, typically, to expand the content " . . . beyond all possibility of adequate comprehension and assimilation by a student in one year of three class hours a week."

Barnard Haley's analysis (1967, p. 47), some 17 years later, echoes similar conclusions:

> The broad coverage characteristic of the elementary course in most institutions also results from the attempt to kill two birds with one stone. The course has typically been designed to serve simultaneously the objectives of preparing prospective economics majors for advanced work and of providing other students (who often do not take further work in the subject) with that understanding of economics that all students should have " . . . as an essential part of a liberal education and a preparation for responsible citizenship."

G. L. Bach (1967), Laurence Leamer (1965), Ben Lewis (1970) and, more recently, Rendigs Fels (1974) also lament the same concerns. There are a number of possible reasons for the persistence of this ambivalence in the determination of proper objectives. In the first place, goals are rarely stated in terms of desired and assessable student performance or behavior. Goals, rather, are expressed in terms of vague qualities such as "understanding," "getting a feel for," or "thinking critically" — with no stipulation of what students are to understand and how they are to demonstrate this understanding, or what they must do to indicate that they have "learned" empathy or critical think-

[1] Joseph Axelrod (1956, p. 47).

[2] Paul L. Dressel and Frances DeLisle (1969, p.5).

[3] Robert Dubbin and Thomas C. Taveggia (1968, p. 8).

[4] Horace Taylor (ed.)(1950, p. 56).

ing. Since instructors have little idea of how well they are imparting a general economic perspective or furthering the skills or habits of scientific inquiry, they cease to operationally utilize such goals. Discussion of these elusive objectives *without a concomitant concern for a more supportive feedback system* becomes a waste of time. The credibility gap which follows the ill-fated efforts at goal reformation has lent a general cynicism and negativism toward any attention to educational goals.

Furthermore, when objectives are in doubt, when the instructor turnover is high, and when much instruction is carried out—as in large universities—by graduate assistants, the result is a gradual and perhaps unconscious displacement of goal priorities, with the first step on the route toward an economics major (or Ph.D.) inevitably emerging as the dominant *operational* objective. It has been common to assert an avowedly liberal arts orientation; perhaps, however, such an assertion only takes effect with a concomitant and explicit *disavowal* of preparing majors for the courses in intermediate theory.

The Liberal Art of Economics

Most commentary in the literature, as well as limited empirical evidence, has favored an introductory economics with a liberal arts orientation. The notion of liberal arts enjoys extensive use and general homage among academicians. It is, however, an elusive concept to define, particularly when used in conjunction with other equally ambiguous concepts such as general education.

One way to specify the nature of economics for liberal arts is to contrast this orientation to alternative "prerequisite" and "instrumental" orientations. The prerequisite orientation serves the major or graduate work sequence. This is not to say that major work in economics is an illiberal form of education. But course work which *only* "pays off" upon completion of advanced work—or, perhaps, on becoming a professional economist—surely cannot advance the liberal education of those who do not go on to this further work. An instrumental orientation, on the other hand, is directed toward immediately functional "life needs" and need not have transference to any generalized intellectual capacity. An economics course with an instrumental orientation might emphasize personal finance or consumer economics.

A liberal arts orientation views the terminal-germinal nature of the course. This does not, of course, mean complete. Nor does it mean that there will be nothing to build upon for further learning. Rather, the terminality of the introductory course means that we optimize *as though* the student were to have no more formal economics. We minimize or eliminate that which pays off only to the major, we maximize information which will generate further interest and self learning in the domain of economics.

This view of the course is concerned less with a body of knowledge, *per se*, than with the mode of conceptualization, principles of explanation, and the nature of verification with respect to the economic phenomena of choice, exchange and allocation. As Daniel Bell stated in his *Reforming of General Education* (1966, p. 165): "The world is always double-storied: the factual order, and the logical order imposed upon it. The emphasis in the college must be less on what one knows and more on the self-conscious ground of knowledge; how one knows what one knows, and the principle of the relevant selection of facts."

The economics perspective is a synthesis of method, knowledge, and intellectual mind-set or predisposition. It is an organic attribute, comprised not simply of conceptual parts in summation, but of a gestalt, which affords a conceptual power above and beyond these parts. To Kenneth Boulding (1958, p. 8), the intellectual skills of the economist " . . . are products of the whole organism so that it is not enough to think with our heads and tongues—we must also think with our bowels!"

It follows, then, that economics is a distinctive science not for what it deals with, but for the way in which it approaches, organizes, and analyzes data or raw materials. One could take sociological (Blau, 1964) or even biological (Daly, 1968) processes and pose valid economic inquiries. In the words of Lionel Robbins (1932, pp. 16-17):

> The conception we have adopted may be described as analytical. It does not attempt to pick out certain kinds of behavior, but focuses on a particular aspect of behavior, the form imposed by the influence of scarcity. It follows from this, therefore, that insofar as it presents this aspect, any kind of human behavior falls within the scope of economic generalizations. . . . There are no limitations on the subject matter of Economic Science save this.

There are at least four reasons for advocating this perspective as the foundation for the introductory course in economics. In the first place, a centrality of method or inquiry is more *intellectually honest* than a centrality of description, fact, and economic law. Knowledge can no longer be treated as a self-evident or self-existing given revealed to the intelligent or diligent seeker of truth. Knowledge is tentative and contingent. Scientific conceptions, as Bell (1966, p. 159) writes, " . . . do not arise out of some fixed *a priori*, for the selection of facts depends in each case upon conceptual principles of the inquiry, and these are not fixed but subject to change."

Second, a mode of inquiry or perspective is a more *functional* kind of knowledge. The operational longevity of the models and even of the techniques of the economist (and all other academicians) has been drastically shortened. This is the result not simply of the contingency of knowledge, as stated above, but of the great changes in social events, institutions, and problems which demand the attention of the economist. As the knowledge and techniques learned by the economist 30 years ago are, in themselves, grossly inadequate to the tasks of today, so might the knowledge and techniques of today be inadequate for the problems of tomorrow. The very roles, in fact, which we identify today as "economist" or "accountant" or "systems technologist" may not fit the roles of tomorrow. To cite again from Bell (p. 157): "Only a broad grasp of method, and of the nature of conceptual innovation and renovation can prepare a person for work in the decade ahead." By the most practical and even vocational of criteria, a liberal arts orientation toward process and inquiry may be the most functional for the introductory course.

The third rationale is *efficiency*. The present principles course which attempts to serve both the liberal and the prerequisite function may be serving neither very well and may operationally favor the orientation with the lowest pay-off (the prerequisite to the major). Richard Ruggles (1962) claims that of the 50-75 percent of Yale undergraduates who take the elementary economics course, only 10-15 percent, at most, become economics majors and only 3-4 percent of these do graduate work in economics. Even if these percentages were much, much larger, there remains, according to Ruggles, " . . . very little of a cumulative nature in the undergraduate curriculum in economics." The graduate schools find mathematics, languages, and related disciplines—not undergraduate preparation in economics—of greatest significance for early success in graduate work in economics.

Finally, it is possible that a liberal arts orientation is the most effective introductory experience even when measured by the quite traditional criteria of the *Test of Economic Understanding* and the newer *Test of Understanding in College Economics*.[5] G. L. Bach* and Phillip Saunders (1966) report that teachers from 20 "high prestige" institutions (including eight universities, two institutes of technology, and eight liberal arts colleges) showed significantly lower retention of economics principles than those coming from 50 other liberal arts colleges and after only one or two courses. Similar results on the college course are also reported in other studies by Bach and Saunders (1970, 1971) and by Joseph Klos and B. W. Trenton (1969).

Content of Introductory Economics

We have said nothing essentially new, of course, in opting for a liberal arts orientation to the introductory course or sequence in econom-

[5] The *Test of Economic Understanding* is published by Science Research Associates, Chicago, and was developed for high school use although it has had extensive use at a college level. A similar *Test of Understanding in College Economics* is published by the Psychological Corporation, New York.

*See page 15, this volume.

ics. If taken seriously, however, this position demands a much closer and more critical scrutiny of the content of this course. We have, at least by implication, asserted that the content of the traditional introductory course (acknowledging that this is largely a "straw man") is not optimal. But what content does one teach toward a liberal arts objective—toward the goal of imparting an economic perspective?

A number of economists and educators advocate the "Stigler Hypothesis" or the "five-year test" as a criterion for selecting content. G. L. Bach (1966, p. 9) correctly poses the question:

> What will the non-major student retain and be able to use on his own in thinking about economic issues five years after he leaves the course. All evidence on learning tells us that for most students this will, at best, be only a very small set of analytical concepts and, if we are successful, an orderly way of thinking carefully and objectively about economic problems.

What is this "small set" of concepts? Are there, perhaps, a number of equally valid "small sets" and, if so, is there some principle by which to match set and student? Are we able, perhaps, to identify this set only in retrospect as that which is retained after all else is lost? Do we teach directly to this set, or do we teach some much larger and more traditional set in the theory that only through such overteaching can any learning survive the attrition of five years?

Our answers are cautious and incomplete; however, we are convinced that content does matter and that some of the following guidelines, predicated on our earlier discission, can contribute to a more pedagogically rational and economically efficient course in introductory economics.

THE INTRODUCTORY COURSE IN ECONOMICS

Strategies, Techniques, and Resources of the Introductory Course

The preoccupation with techniques and strategies is most evident in the recent research and literature on the teaching of undergraduate economics. Bernard Haley's American Economic Association report (1967) on experimental activities in elementary economics and Darrell Lewis' Joint Council on Economic Education monograph (1971) on research activities in economic education, both reveal considerable experimentation in presentation techniques (lecture, television, discussion, class size), programmed instruction, computer-assisted instruction, games, and simulation. Although both Haley and Lewis and similar, but less comprehensive surveys by Rendigs Fels (1963, 1969), Keith Lumsden (1970), Henry Villard (1969), and Arthur Welch (1972), and various other review articles in the *Journal of Economic Education*, all comment on the poor quality of research in the design and analysis of most experiments, their reports are an encouraging sign of growing concern and involvement with techniques and resources for the teaching of introductory economics.

Such research is valuable and must be continued. We stand to benefit greatly from knowledge of how to more effectively and efficiently plan the teaching and learning of economics. But it only makes sense to program something when we are quite convinced of the worth of that which goes into the program. Herrnstadt (1965, p. 572) found in research on the teaching of collegiate economics " . . . an implication that we have the cart before the horse. We seem to adopt new instructional techniques without first asking what we want to teach to whom."

Perhaps the most valuable research from the perspective of this paper is the work recently developed by Allen Kelley (1972) at the University of Wisconsin and at Duke University. Kelley has developed an information-retrieval system which applies computers to the teaching of large sections of students. This approach not only strives toward the efficiency question of being economical, but gives promise of contributing directly to the effectiveness of the educational process itself. The Teaching Information Processing System (TIPS) not only allows

for "increased flexibility in meeting needs of individual students" and the concomitant feedback mechanisms so necessary for a dynamic teaching-learning process, but it also has the potential for both incorporating and researching the course systems approach appealed for in this paper. It is hoped that further research with such teaching systems as TIPS will also systematically examine alternative goals and content for the introductory economics course.

Search for Structure

As a first step, we must attempt to identify those concepts and relationships which form the structure of economics. Structure is not, itself, knowledge, but is an attribute of knowledge. It is not an ontological property common to all knowledge and revealed, slowly and grudgingly, to the perceptive learner. Rather, structure is a construct applicable in varying degrees to certain fields of knowledge. Structure has been imparted to knowledge to the degree that the power of this knowledge—to generate new constructs, to order data, to account for phenomena, and to predict events—increases far more than proportionally as the elementary concepts become known and related to one another. Structure implies a gestalt where the removal or rearrangement of fundamental parts has serious consequences for the system. The more serious, the more structured the knowledge; the less serious, the less structured—until we are considering virtually unstructured knowledge where the total system is nothing more than a sum of discrete concepts, each of which could stand alone.

No two economists will completely agree on the content and configuration of this structure for economics. From the few economists who have contributed to the literature on this question we could probably find consensus on including within this "indispensible core": production and consumption, trade-offs and exchanges, technical and allocative efficiency, equilibrium price and its requisite assumptions, and the circular flow of income and money payments. Without at least an implicit understanding—intuitive and habitual — of these ideas and their interrelationships, there can be no economic perspective.

Contrary to popular belief, these ideas are *not* taught in nearly every introductory course. Presented, yes, amidst a great quantity of Marshallian luggage, geometric gymnastics, and watered-down models, but they are not taught. To teach is to effect a change in the cognitive behavior of one's students— not just the few bright ones, but most, if not all, of one's students. Until we know what students should be able to do to illustrate their grasp of allocative efficiency, until we test for this behavior *while time remains to correct any deficiencies which this test may reveal*, and until we are prepared to throw away the remainder of our syllabus until this concept has been truly learned, we are only presenting and not yet teaching.

We must recognize those concepts, topics, and skills which may be interesting and even useful but which do not fall within this core structure. Economists have been even less willing to exclude than to include, but we feel that such content elements and skill refinements as the balanced budget multiplier, the kinked demand curve, and arc elasticity are probably not, in themselves, essential to any core structure of economics. A great many concepts, of course, may be more or less essential to this core structure depending upon one's conception of the nature of the discipline as well as the ingredients of the particular learning sequences used in furtherance of an essential concept or relationship.

Our message is twofold. First, we must treat alternative *means* to these core concepts and relationships as *truly alternative* and experiment with other, less traditional devices. Second, we must seriously consider the opportunity cost of those non-essential concepts and relationships with respect to the *true learning* of the structure of economics.

The institutionalist might deny the existence of such a structure as we have defined it. Others, while not denying the "structuredness" of the discipline, might deny the wisdom of teaching for perspective and disciplinary generalizations. While we would disagree with the epistemology and educational objectives behind such curricula, our thesis should still apply. Content

does matter, and the selection of content can only be justified by addressing oneself, on one hand to the nature of the discipline, and on the other, to the educational mission of the introductory course.

Beyond the Structure

The logical corollary to the need for identification of a fundamental structure of economics is the need to better rationalize our choice of content, which is illustrative of the economic perspective or which has some worth or relevance in itself. A chapter on foreign trade, for example, adds little to the economic perspective except as an illustration and application of relative factorial endowments and specialization as applied to geographic entities with differing monetary units. International trade may be the best context either for developing or for reinforcing such concepts. Or, the specific social, political, and economic events associated with world monetary crisis may be of such importance that they ought to be dealt with, and the introductory economics course is surely a reasonable context for such a topic. Yet, we still have an uncomfortable feeling that this chapter is taught by a great many instructors for no other reason than its traditional inclusion in all principles texts—a tradition which has nurtured the misconception that foreign trade and balance of payments are indispensible parts of the very structure of economics.

The same thing, of course, could be said for other "economic problem" chapters and for the various institutional approaches — underdeveloped countries, the farm problem, collective bargaining, and economic history. Many of these are of the utmost importance—but not necessarily important to the ability to think with the economist's perspective.

It is not that these topics should not be taught. But they ought to be selected and justified in comparison with alternative content areas which have not enjoyed a traditional niche in the principles texts. Such topics could include the economics of poverty and income distribution, economic decision theory, the economics of education, urban economics, and the economics of discrimination. Particular attention must be given to welfare economics—traditionally ignored by the discipline. Surely the concepts of social optimizing are no more difficult nor any less relevant than the multiple expansion of bank deposits upon which such an inordinate amount of time is spent. Surely we cannot justify such a neglect by the spurious observation that welfare concepts are treated "in depth" at the intermediate and advanced levels. Equally neglected content areas include the traditionally slighted behavioral assumptions (and the values inplied therein) underlying our, or any other, economic system.

Moreover, analytical skills, while undoubtedly emphasized in all of our introductory courses, are rarely *explicitly taught*. We pay brief homage to skills in chapter one of the text and, perhaps, in one of our introductory lectures. Beyond this point, however, students are supposed to know, or to absorb by classroom osmosis, such concepts as independent and dependent variables, correlation and causation, and postulates and assumptions. The terms themselves, of course, are not important. But the ability to say how a given proposition could be verified or to analyze a controversy and distinguish among its components of value, definition, or perception is essential to our goal of "thinking economically."

Our experience is that students simply do not acquire these abilities, and our conjecture is that they fail to do so because we fail to teach these intellectual skills and habits directly. We do not suggest that skills can be taught in a contextual vacuum; obviously, students learn about variables through their work with, say, the determinants of demand. But we must be a bit less concerned with what students can do with a demand schedule and bit more concerned with what they learn of variables, causation, and *ceteris paribus*.

We are not advocating more content for an already overfull introductory course. Rather, we are urging a more conscientious application of our own knowledge and economic perspective toward the problems of the introductory course in economics. We are faced, essentially, with the welfare problem of how to optimize learning within the constraints of our inputs—available time, needs and abilities of students,

and our own abilities and inclination. To resolve this problem, we must know our goals—in priorities—and their trade-offs. We must know whether we can sub-optimize and rely on further learning or whether we must assume our course or sequence to be terminal. We must recognize the "alternativeness" of so much that we teach and be able to justify its opportunity cost. We must form some views on the technology of teaching and learning. Finally, we must devise a feedback system which tells us not how well the student is learning the text, but how well our course is achieving its objectives—and we must be responsive to the messages from this feedback system. Let us attend to these matters while we worry about class size, programmed texts, computer-assisted instruction, and the construction of elaborate games.

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